



Smithsonian

**FY 2004 Budget Justification to OMB
Volume II
Appendix
October 2002**

ADMINISTRATIVELY CONFIDENTIAL

Information not to be released until after the President's Budget is submitted to the Congress in
2003

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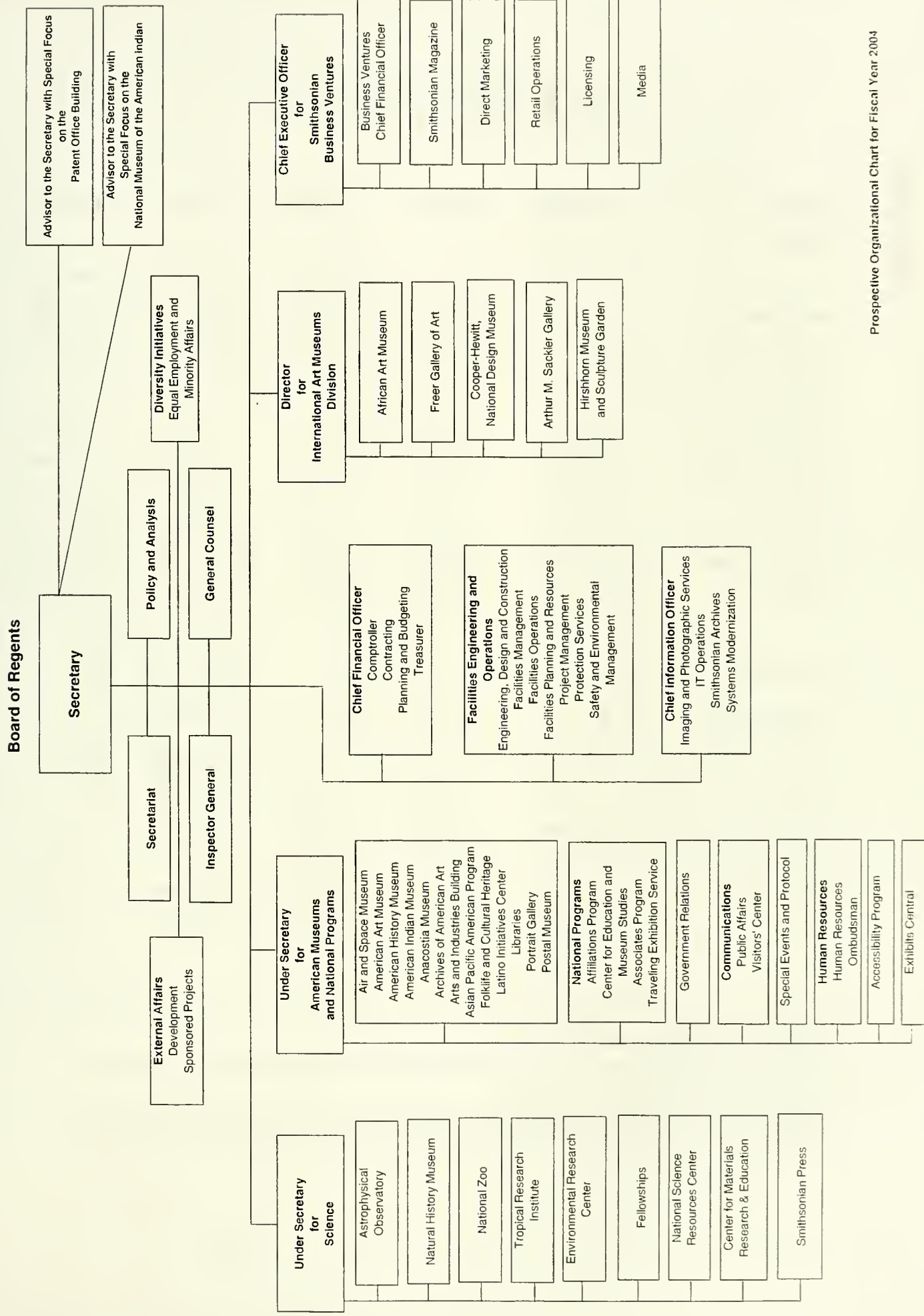
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SMITHSONIAN INSTITUTION



VISITS TO THE SMITHSONIAN

FY 1997–FY 2001

<u>MUSEUM</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
MALL					
SI Castle	1,812,172	1,890,838	1,854,903	1,836,963	1,857,990
A&I Building	986,348	875,853	742,415	868,171	1,167,490
Natural History	5,859,717	6,476,700	7,076,380	9,489,272	9,100,091
Air and Space/Silver Hill	8,348,096	10,238,890	9,410,872	9,008,608	9,831,447
Freer Gallery	290,939	330,104	364,305	347,607	306,065
Sackler Gallery	176,627	207,653	213,276	224,151	192,296
African Art	227,703	232,939	245,786	234,295	214,775
Ripley Center	134,579	300,147	333,537	502,334	555,183
American History	5,106,387	5,579,039	5,680,001	6,261,715	5,798,993
Hirshhorn	767,229	829,782	795,646	951,570	731,453
OFF MALL					
American Art/ Portrait Gallery ¹	374,494	550,087	362,854	176,881	0
Renwick	132,481	130,700	125,910	146,071	149,777
Anacostia ²	7,206	26,100	25,794	3,302	0
Cooper-Hewitt ³	100,804	131,949	108,579	150,786	136,329
American Indian ⁴	577,962	615,697	587,546	498,316	413,470
National Zoo	2,634,000	2,800,000	2,682,283	2,360,876	2,807,353
Postal	450,288	423,760	461,743	450,483	400,478
TOTAL	27,987,032	31,640,238	31,071,830	33,511,401	33,663,190

¹Closed to the public January 2000.

²Closed to the public December 1996 through January 1998; September 1998; and December 1999 through February, 2002.

³Galleries closed to the public August 1995 through September 1996; the Garden remained open.

⁴Includes the George Gustave Heye Center, which opened in 1994, and the Cultural Resources Center, which opened in April 2000.

SMITHSONIAN INSTITUTION

Facilities Capital Program

Detail of

FY 2003 - FY 2008 Program

FY 2004 OMB Submission

Prepared by the
Office Of Facilities Engineering and Operations

September 9, 2002

Definitions

FACILITIES CAPITAL PROGRAM *

REVITALIZATION

Revitalization activities correct extensive and serious deficiencies, materially extend service life, and often add capital value.

Major Projects

Projects in this category are generally "whole house" renovations of existing buildings to replace major building systems and equipment, to extend service life and add capital value. Also includes modernization and upgrade work to incorporate new codes and standards. Most projects in this category will exceed \$5 million in total cost, and will be identified and described separately in budget submissions.

Other Revitalization Projects

Projects in this category are smaller in scale than major projects, usually involving single building systems or pieces of equipment. These projects may be internally categorized as follows:

General Repairs

Provides resources for unscheduled, but essential, revitalization projects that cannot be anticipated specifically in advance or that do not fit into any one discrete category. Funds in this category also include staff costs for contract supervision and administration for projects in the Other Revitalization category.

Facade, Roof, and Terrace Repairs

Provides exterior repair and replacement of building envelopes to prevent major structural and interior damage and deterioration due to age, water intrusion, and weathering.

Fire Detection and Suppression Projects

Provides fire protection and safety measures meeting today's standards with state-of-the-art technology. Typically includes installation of detection systems such as smoke alarms, suppression systems such as sprinklers, and architectural modifications to create fire zones by installing fire walls and doors.

Access, Safety, and Security Projects

Provides better access to facilities for persons with disabilities, improves environmental conditions for the health and safety of visitors and staff, and corrects facility conditions that threaten the security of the National Collections.

Utility System Repairs

Provides capital repairs, replacement and upgrades to the heating, ventilating, and air conditioning (HVAC) systems and plumbing, electrical, and communications systems to ensure reliable and energy-efficient operation of utility systems.

Alterations and Modifications

Provides for changes, improvements or minor additions to existing space to maintain the vitality and operating effectiveness of programmatic activities. Individual projects cost less than \$1 million and have little or no impact on facility operating costs.

CONSTRUCTION

Provides funds for construction or acquisition (other than by lease) of additional physical plant assets, and for renovation of newly acquired facilities to ready them for use. Projects in this category will be individual line items in the budget request.

FACILITIES PLANNING AND DESIGN

Provides funds to identify and analyze long-range revitalization and expansion needs, prepare master plans, and to design specific capital program projects.

* NOTE: Routine maintenance and repair work is no longer included in the Capital Program.

Explanation of Ranking Codes

R&R Ranking Code System	
A Must not defer:	
A1 Building Shell Failure, includes	
- Active roof leak	
- Active wall leak	
A2 HVAC, Electrical, Security System Failure, includes	
- Active piping leak	
- Active or frequent system/equipment failures	
A3 Mandated/Unexpected Compliance	
B Should not defer (High Priority):	
B1 Building Shell Maintenance, includes	
- Imminent failure of exterior shell	
- Imminent failure of exterior HVAC, electrical, security equipment	
- On-going site utility maintenance problem	
B2 Building System Maintenance, includes	
- Imminent failure of building systems	
B3 High priority code improvements includes	
- fire and life safety, accessibility, HVAC, electrical, security equipment	
C Should not defer (Medium Priority):	
C1 Predicted, required repair or maintenance	
C2 On-going or phased construction efforts, includes	
- Separate but part of on-going construction	
- Needed for start of higher priority project	
- Needed to properly complete high priority project	
C3 Cost-effective payback period, includes	
- Energy or maintenance savings payback within 7 years	
D Can defer one year or logically phase	
E Can defer more than one year	
F Should reconsider	

A&M Ranking Code System	
A Cannot defer:	
Critical to success of high priority Institutional program initiative; program cannot be implemented without this project.	
B Should not defer:	
B1 Part of backlog of A&M requirements to improve operating efficiency.	
B2 Part of an ongoing or phased effort, coordinated with other projects, or with significant program considerations.	
C Could defer:	
Defer construction, design funding should remain in projected year, or construction could be logically phased (suggest minimum funding increment).	
D Can defer comfortably for one year	
E Can defer more than one year	
F Should reconsider	

SMITHSONIAN INSTITUTION FEDERAL CAPITAL PROGRAM
Program by Building

\$(000)s

Campus	Location	Priority	Project	FY03	FY04	FY05	FY06	FY07	FY08
Arts and Industries Building									
DC - Mail	AIB	B2	Design Major Restoration	0	0	2,000	0	0	0
DC - Mail	AIB	B2	Restore Arts & Industries Building	0	0	8,000	40,000	60,000	47,000
			Subtotal: AIB	0	0	10,000	40,000	60,000	47,000
Anacostia Museum									
			Subtotal: AM	0	0	0	0	0	0
Cooper-Hewitt Museum									
New York, NY	CHM	B2	Complete Miller-Fox Renovation Design	135	0	0	0	0	0
New York, NY	CHM	B2	Mansion Electric Distribution & Lighting Upgrade Design	300	0	0	0	0	0
New York, NY	CHM	B3	Complete Construction Documents for Ex. Stone Project	0	0	100	0	0	0
New York, NY	CHM	C3	Design Mansion Library Renovation	0	0	200	0	0	2,000
New York, NY	CHM	B2	Design Mansion Boiler Replacement	0	15	0	0	0	0
New York, NY	CHM	B2	Complete Miller-Fox Renovation	0	0	1,300	0	0	0
New York, NY	CHM	B2	Mansion Electric Distribution & Lighting Upgrade	0	0	750	750	0	0
New York, NY	CHM	B2	Replace Mansion Boilers	0	0	0	260	0	0
New York, NY	CHM	B3	Ground Floor Accessibility Upgrades	700	0	0	0	0	0
New York, NY	CHM	B3	Stabilize Mansion Fence	0	0	600	0	0	0
New York, NY	CHM	B1	Stabilize Garden Stairwalls	0	0	0	0	900	0
New York, NY	CHM	B2	Stabilize Mansion Sidewalks	0	0	0	450	0	0
New York, NY	CHM	B3	Restore Mansion Interior	300	0	0	0	0	0
New York, NY	CHM	C2	Upgrade Collection Storage and Perimeter Security	0	0	0	250	0	0
			Subtotal: CHM	1,435	15	2,950	1,710	900	2,000

SMITHSONIAN INSTITUTION FEDERAL CAPITAL PROGRAM

Program by Building

\$(000)s

Campus	Location	Priority	Project	FY03	FY04	FY05	FY06	FY07	FY08
Freer Gallery of Art									
DC - Mall	FGA	B1	Design Replace/Restore Roof Exterior	0	0	500	0	0	0
DC - Mall	FGA	B1	Replace/Restore Roof Exterior	0	0	0	3,000	0	7,000
DC - Mall	FGA	B3	Install Courtyard Lift	0	0	0	70	0	0
DC - Mall	FGA	C3	Correct Courtyard Window & Door Condensation	0	0	0	150	0	0
DC - Mall	FGA	B2	Repair Utility System	0	0	0	500	0	0
DC - Mall	FGA	C1	Replace Gallery Lighting Systems	0	0	0	0	350	0
Subtotal: FGA				0	0	500	3,720	350	7,000

Hirshhorn Museum and Sculpture Garden

DC - Mall	HMSG	A2	Design Restore & Waterproof Plaza & Foundation Walls	0	0	1,000	0	0	0
DC - Mall	HMSG	A2	Restore & Waterproof Plaza & Foundation Walls	0	0	0	0	0	20,000
DC - Mall	HMSG	B3	Renovate Front Entrance	0	0	850	0	0	0
DC - Mall	HMSG	C	Modernize Security (Replace SIPSS)	0	550	0	0	0	0
DC - Mall	HMSG	D	Replace Windows	0	0	350	0	0	0
DC - Mall	HMSG	B	Improve Interior Lighting	1,000	0	0	0	0	0
DC - Mall	HMSG	D	Improve Mall Master Raceway	0	0	0	0	0	300
DC - Mall	HMSG	D	Repair Fountain	0	350	0	0	0	0
Subtotal: HMSG				1,000	900	2,200	0	0	20,300

Museum Support Center

Suitland, MD	MSC	B2	Design Upgrade Mechanical & Electrical Systems	0	0	1,000	0	0	4,000
Suitland, MD	MSC	B2	Upgrade Mechanical & Electrical Systems	0	0	0	0	0	0
Suitland, MD	MSC	B3	Horticulture Support Building Stairs	0	90	0	0	0	0
Suitland, MD	MSC	C2	Upgrade Building CCTV and Pod Security	0	0	0	0	375	0
Suitland, MD	MSC	C2	Repair North Service Road	0	0	0	510	0	0
Suitland, MD	MSC	B3	Improve Fire Detection & Protection	0	0	500	0	0	0
Construct Pod 5				2,000	22,000	6,000			
Subtotal: MSC				2,000	22,090	7,500	510	375	4,000

SMITHSONIAN INSTITUTION FEDERAL CAPITAL PROGRAM

Program by Building

\$(000)s

Campus	Location	Priority	Project	FY03	FY04	FY05	FY06	FY07	FY08
Multiple Site Projects									
All Facilities	MULTI	B	Facility Planning and Design, Revitalization	2,590	4,500	5,000	5,000	5,000	5,000
All Facilities	MULTI	B	Facility Modifications Planning and Design, inc. Const. Planning	0	500	500	500	500	500
All Facilities	MULTI	B	Real Property and Space Utilization Studies	450	400	150	550	150	300
All Facilities	MULTI	B	Comprehensive Facilities Master Development Planning Studies	0	1,700	2,000	1,100	600	850
All Facilities	MULTI	B	Design Anti-Terrorism Security Improvements	0	0	0	0	0	0
All Facilities	MULTI	B	Implement Anti-Terrorism Security Improvements	0	10,100	29,355	0	0	0
All Facilities	MULTI	B	Modernize Security (upgrades to new system)	999	0	1,000	1,000	1,000	1,000
Suitland, MD	MULTI	B3	Upgrade Fire Mains, All Suitland	0	0	400	0	0	0
All Facilities	MULTI	B2	Abate and Monitor Lead, all locations	300	300	400	500	500	500
All Facilities	MULTI	B2	Abate Asbestos, all locations	300	300	400	500	500	500
All Facilities	MULTI	B2	Monitor Asbestos, all locations	600	600	600	700	700	700
All Facilities	MULTI	B3	Improve Escalator/Elevator Safety	0	500	0	345	500	500
All Facilities	MULTI	A	Provide Guard Services, All Locations	350	600	700	700	700	700
All Facilities	MULTI	B	Mall Wide Signage	0	1,000	1,000	0	0	0
All Facilities	MULTI	B	Miscellaneous Capital Repair	2,690	4,805	5,000	6,000	6,000	6,000
All Facilities	MULTI	B	Miscellaneous Capital Repair - FY02 roll forward	2,300	0	0	0	0	0
All Facilities	MULTI	A	Personnel, Reprographics and Library	3,500	4,000	5,000	5,000	5,000	5,000
DC - Soldier's Home	MULTI	B1	Reglaze Curb Footing and Replace Floor, Greenhouses 9 & 10	0	0	0	150	0	0
All Facilities	MULTI	B	Program Oriented Alterations & Modifications	3,000	2,000	6,000	6,000	6,000	6,000
			Subtotal: MULTI	17,079	31,305	57,505	28,045	27,150	27,550
National Air and Space Museum									
DC - Mall	NASM	B2	Design Mechanical System, Basement & 3rd Floor	0	0	4,000	0	0	0
DC - Mall	NASM	B2	Replace Mechanical System, Basement & 3rd Floor	0	0	0	41,000	0	0
DC - Mall	NASM	B2	Upgrade Electrical Systems	0	0	0	0	0	10,000
DC - Mall	NASM	B2	Fire Alarm Upgrade	0	0	0	4,000	0	0
DC - Mall	NASM	B3	Replace Ramsey Room Halon System	0	0	200	0	0	0
DC - Mall	NASM	B3	Upgrade Egress Signage & Travelway, Third Floor	0	0	100	0	0	0
DC - Mall	NASM	B3	Upgrade Accessible Egress	0	0	0	0	250	0
DC - Mall	NASM	C2	Modernize Security System	0	0	400	0	0	0
DC - Mall	NASM	C1	Complete Window Wall Renovation	125	0	0	0	0	0
DC - Mall	NASM	C1	Repair Irrigation System @ Jefferson Drive	0	0	100	0	0	0
DC - Mall	NASM	C1	Repair Irrigation and Water Supply for Flight Garden	0	0	70	0	0	250
DC - Mall	NASM	A1	Repair Delta Solar Reflection Pool	0	0	0	0	200	0
DC - Mall	NASM	A1	Waterproof Terrace	0	0	0	0	1,500	0
DC - Mall	NASM	C1	Replace Dimmers/Ceiling in Theater	0	0	0	200	0	0
			Subtotal: NASM	125	0	4,870	45,200	1,950	10,250

SMITHSONIAN INSTITUTION FEDERAL CAPITAL PROGRAM

Program by Building

\$(000)s

Campus	Location	Priority	Project	FY03	FY04	FY05	FY06	FY07	FY08
National Museum of American History									
DC - Mall	NMAH	B3	Design Public Space Renewal	0	4,000	1,000	0	0	0
DC - Mall	NMAH	B3	Study Fresh Air Intake Protection	0	0	2,000	0	0	0
DC - Mall	NMAH	C3	Study Convsn to Hot Water Re-Heat System	0	0	0	0	5,000	0
DC - Mall	NMAH	B3	Renew Public Space and Upgrade Chilled Water Plant	0	0	10,000	22,000	0	0
DC - Mall	NMAH	B3	Upgrade Fire Detection & Alarm System	0	2,500	0	0	0	0
DC - Mall	NMAH	B3	Upgrade Restrooms and Improve Restroom Access	0	3,000	0	0	0	0
DC - Mall	NMAH	A1	Repair Life Safety/Fire Protection Deficiencies	0	425	0	0	0	0
DC - Mall	NMAH	B2	Upgrade Collection Storage Electronic Security	0	0	500	0	0	0
DC - Mall	NMAH	B1	Repair Constitution Ave. Entry	150	0	0	0	0	0
DC - Mall	NMAH	C1	Replace Trash Compactor & Repair Dock Paving	0	0	0	800	0	0
DC - Mall	NMAH	A2	Repair Mechanical & Electrical Systems	2,000	0	0	0	0	0
DC - Mall	NMAH	B3	Replace HVAC Controls	0	0	0	0	0	500
DC - Mall	NMAH	C1	Replace Emergency Generator	0	0	0	1,000	0	0
Subtotal: NMAH				2,150	9,925	13,500	23,800	5,000	500

National Museum of the American Indian

New York, NY	NMAI	B3	GGHC Accessibility	80	0	0	0	0	0
New York, NY	NMAI	B3	Modify Gallery Lighting	0	0	80	0	0	0
Suitland, MD	NMAI	B2	Install Backup Electric Service at CRC	100	0	0	0	0	0
DC - Mall	NMAI		Construct Mall Museum	10,000	0	0	0	0	0
				10,180	0	80	0	0	0

National Museum of Natural History

DC - Mall	NMNH	A3	Design Chemical Control Facility	0	0	200	0	0	0
DC - Mall	NMNH	B3	Design Ongoing Revitalization	0	0	6,000	5,000	3,000	3,000
DC - Mall	NMNH	A2	Ongoing Revitalization	10,000	11,000	37,600	38,000	33,000	30,000
DC - Mall	NMNH	B3	Install New Interior Handrails	0	0	600	0	0	0
DC - Mall	NMNH	B2	Replace West Loading Dock Lift	0	0	200	0	0	0
DC - Mall	NMNH	A3	Install Chemical Control Facility	0	0	0	1,000	0	0
DC - Mall	NMNH	B2	Upgrade Collection Storage Electronic Security	0	0	500	0	0	0
DC - Mall	NMNH	B2	Upgrade Hope Diamond Security	0	0	0	300	0	0
Subtotal: NMNH				10,000	11,000	45,100	44,300	36,000	33,000

SMITHSONIAN INSTITUTION FEDERAL CAPITAL PROGRAM
Program by Building

\$(000)s

Campus	Location	Priority	Project	FY03	FY04	FY05	FY06	FY07	FY08
National Zoological Park									
DC - Rock Creek	NZP	B3	Update Zoo Master Plan, Rock Creek	0	0	500	1,000	0	0
DC - Rock Creek	NZP	A1	Design Roof & Skylight Replacement	400	500	0	0	0	0
DC - Rock Creek	NZP	B1	Design Lemur Island Waterproofing	0	0	500	0	0	0
DC - Rock Creek	NZP	B1	Design Road & Bridge Repair	0	50	0	100	0	0
DC - Rock Creek	NZP	B1	Design Africa House Renovation (Existing Elephant House)	800	800	5,000	0	0	0
DC - Rock Creek	NZP	B1	Asia II & III Design Elephant Relocation	2,500	0	0	0	0	0
DC - Rock Creek	NZP	B1	Design Seal/Sea Lion & Lower Bear Area	1,000	0	800	10,000	0	0
DC - Rock Creek	NZP	A2	Advance Planning and Design for Misc. Projects	0	500	1,250	1,250	1,250	1,250
DC - Rock Creek	NZP	A1	Design Small Mammals Renovation	0	0	0	800	6,000	0
DC - Rock Creek	NZP	A1	Design Reptile & Invertebrates Renovation	0	0	0	0	0	800
DC - Rock Creek	NZP	A1	Continue Design for Revitalization of Major Structures (Bird, Ape)	0	0	0	0	0	0
DC - Rock Creek	NZP	A1	Asia I - Renovate Deer & Tapir	7,000	0	0	0	0	0
DC - Rock Creek	NZP	B1	Asia II & III New Elephant Yards and Holding	0	9,000	32,000	30,000	0	0
DC - Rock Creek	NZP	B1	Africa House Renovation	0	0	0	0	40,000	0
DC - Rock Creek	NZP	B1	Renovate Seal/Sea Lion & Lower Bear Areas	0	0	0	0	0	50,000
DC - Rock Creek	NZP	B1	Renovate Small Mammals	0	0	0	0	0	0
DC - Rock Creek	NZP	B1	Continue Revitalization of Major Structures	0	0	0	0	0	0
DC - Rock Creek	NZP	A1	Construct Consolidated Maintenance Facility	0	0	0	0	0	4,700
Front Royal, VA	NZPFR								
DC - Rock Creek	NZP	B1	Improve Ape House Ventilation	0	0	500	0	0	0
DC - Rock Creek	NZP	A1	Improve/Upgrade Site Utilities (include in projects)	0	0	500	500	1,000	1,000
DC - Rock Creek	NZP	A2	Renovate/Improve Public Restrooms and Amenities	0	0	0	0	0	0
DC - Rock Creek	NZP	A2	Renovate/Improve Staff Restrooms and Amenities	0	0	0	0	0	0
DC - Rock Creek	NZP	A3	Renovate Auditorium & Seating for ADA	0	0	0	1,250	0	0
DC - Rock Creek	NZP	A3	Improve Accessibility (Include in projects)	100	0	100	100	100	100
DC - Rock Creek	NZP	A2	Renovate Quarantine	0	0	250	0	0	0
DC - Rock Creek	NZP	A1	Repair Seal/Sea Lion & Beaver/Otter (Emergency)	75	425	0	0	0	0
DC - Rock Creek	NZP	A	Miscellaneous Capital Repairs	325	350	350	350	500	500
DC - Rock Creek	NZP	A1	Waterproof Lion/Tiger Moat & Planter	0	0	900	0	0	0
DC - Rock Creek	NZP	B1	Waterproof Lemur Island	0	0	500	500	0	0
DC - Rock Creek	NZP	A1	Replace Roof & Skylight Elephant, Reptile, Sm. Mammal	0	0	250	500	500	500
DC - Rock Creek	NZP	A3	Improve Fire Protection Systems	250	0	350	250	200	500
DC - Rock Creek	NZP	A3	Vet Hospital Sprinkler & Smoke Detection	200	0	0	0	0	0
DC - Rock Creek	NZP	A2	Improve Animal Containment Throughout Site	0	340	100	200	500	1,000
DC - Rock Creek	NZP	B3	Abate Asbestos & Lead	50	0	0	0	0	0
DC - Rock Creek	NZP	A2	Replace Hydraulics at Great Apes	0	0	160	0	0	0
DC - Rock Creek	NZP	A2	Replace Cheetah Fencing	0	0	150	0	0	0
DC - Rock Creek	NZP	A2	Reopen Forest Carnivore Trail	0	0	0	0	120	100

SMITHSONIAN INSTITUTION FEDERAL CAPITAL PROGRAM

Program by Building

\$(000)s

Campus	Location	Priority	Project	FY03	FY04	FY05	FY06	FY07	FY08
DC - Rock Creek	NZP	B2	Amazonia: Replace Railings	0	0	0	0	200	0
DC - Rock Creek	NZP	B3	Replace Traffic Signs	0	0	0	350	0	0
Front Royal, VA	NZPFR	B3	Install/Improve Fire Protection Systems	100	100	100	100	100	100
Subtotal: NZP				12,800	12,065	44,260	47,250	50,470	60,550

Patent Office Building

DC - Gallery Place	POB	A1	Renovate Patent Office Building	25,000	48,000	44,400	0	0	0
Subtotal: POB				25,000	48,000	44,400	0	- 0	0

Quadrangle: National Museum of African Art, Sackler Gallery, Ripley Center

DC - Mail	QUAD	B2	Design Mechanical System & Roof	0	0	0	4,000	0	0
DC - Mail	QUAD	B2	Replace Mechanical System & Roof	0	0	0	0	56,000	0
DC - Mail	QUAD	A2	Replace Fire Alarm System	0	1,500	0	0	0	0
DC - Mail	QUAD	B2	Haupt Garden Fountain	0	0	0	300	0	0
DC - Mail	QUAD	D	Improve NMAA Courtyard Access	0	0	0	100	0	0
DC - Mail	QUAD	C2	Upgrade Exhibit Electronic Security	0	0	0	0	400	0
DC - Mail	QUAD	C1	Repair Interior Stone	0	0	0	0	250	0
DC - Mail	QUAD	B2	Upgrade Utility Systems	0	0	0	0	0	8,500
DC - Mail	QUAD	C2	Replace Ripley Kiosk Elevator	0	0	0	0	300	0
DC - Mail	QUAD	A2	Replace Steam Humidification System	0	0	950	0	0	0
Subtotal: QUAD				0	1,500	950	4,400	56,950	8,500

Renwick Gallery

DC - Lafayette Park	RG	B2	Design Major Restoration	0	0	2,000	0	0	0
DC - Lafayette Park	RG	B2	Restore Renwick Gallery	0	0	0	20,000	0	0
DC - Lafayette Park	RG	B3	Life Safety Improvements, inc. Cooling Tower Replacement	0	0	2,000	0	0	0
Subtotal: RG				0	0	4,000	20,000	0	0

SMITHSONIAN INSTITUTION FEDERAL CAPITAL PROGRAM
Program by Building

\$(000)s

Campus	Location	Priority	Project	FY03	FY04	FY05	FY06	FY07	FY08
Smithsonian Astrophysical Observatory									
Hawaii	SAO	B1	Oxygen Enrichment, Summit Facility	50	0	100	0	0	0
Tuscon, AZ	SAO	B1	Abate Asbestos Throughout Site	0	0	100	0	0	0
Tuscon, AZ	SAO	B1	Repair/Improve Whipple Road	0	0	1,500	0	0	0
Tuscon, AZ	SAO	C2	Replace HVAC	0	0	200	0	300	0
Hawaii	SAO	B2	Install SMA Emergency Generator	0	0	0	200	0	0
Tuscon, AZ	SAO	B2	Improve Water System	0	0	375	0	0	0
Tuscon, AZ	SAO	B2	Install Base Camp Microwave Link	0	0	150	0	0	0
Tuscon, AZ	SAO	B2	Install MMT Rotary Uninterruptible Power	0	0	150	0	0	0
Tuscon, AZ	SAO	B2	Replace FM Repeater	0	0	60	0	0	0
Tuscon, AZ	SAO		VERITAS Infrastructure and Site Preparation	0	0	4,500	0	0	0
Subtotal: SAO				50	0	7,135	200	300	0
Smithsonian Environmental Research Center									
Edgewater, MD	SERC	B3	Improve Entrance Road	0	500	500	500	0	0
Edgewater, MD	SERC	B2	Consolidate and Improve Alcohol Storage	0	600	0	0	0	0
Edgewater, MD	SERC	B3	Install Perimeter Fire Lane	0	0	0	1,750	0	0
Edgewater, MD	SERC	B2	Install Perimeter CCTV	0	0	275	0	0	0
Edgewater, MD	SERC	B3	Improve Security Lighting	0	0	0	0	100	0
Edgewater, MD	SERC	B3	Improve Signage, Security and Accessibility	0	0	200	830	400	0
Edgewater, MD	SERC	B2	Repair Corn Island Facilities	0	0	200	500	0	0
Edgewater, MD	SERC	C2	Improve Access to Southern Site	0	0	0	1,000	0	0
Edgewater, MD	SERC	B3	Install Utility Connection to Waterfront	0	0	550	0	0	0
Edgewater, MD	SERC	B2	Repair Sanitary Sewer	450	0	500	0	0	0
Subtotal: SERC				450	1,100	2,225	4,580	500	0

SMITHSONIAN INSTITUTION FEDERAL CAPITAL PROGRAM

Program by Building

\$(000)s

Campus	Location	Priority	Project	FY03	FY04	FY05	FY06	FY07	FY08
Silver Hill Facility									
Suitland, MD	SHF	B2	Revitalize Infrastructure	0	0	0	0	0	21,000
Suitland, MD	SHF	B3	Abate Asbestos Bldgs. in 15, 16, & 18	0	0	500	500	500	0
Suitland, MD	SHF	B3	Monitor Asbestos Condition Throughout Site	0	0	150	150	150	0
Suitland, MD	SHF	B3	Abate Asbestos in Building 16 Collection	0	0	750	0	0	0
Suitland, MD	SHF	C1	Install Emergency Intercom	0	0	120	0	0	0
Suitland, MD	SHF	B3	Upgrade Fire Alarm System	0	500	0	0	0	0
Suitland, MD	SHF	B3	Provide Central Fire Pump	0	0	750	0	0	0
Suitland, MD	SHF	B1	Renovate Building 25	0	0	1,250	0	0	0
Suitland, MD	SHF	B1	Repair Building 10 Roof	0	300	200	0	0	0
Suitland, MD	SHF	B3	Provide Surge Protection for Site	0	0	0	750	0	0
Suitland, MD	SHF	B2	Improve Environmental Conditions, Bldg 21	0	0	0	150	0	0
Suitland, MD	SHF	B2	Improve Environmental Conditions, Bldgs... 15/16	0	0	0	300	0	0
Suitland, MD	SHF	B2	Repair HVAC, Buildings 22 & 23	0	0	600	0	0	0
Subtotal: SHF				0	800	4,320	1,850	650	21,000
Smithsonian Institution Building									
DC - Mail	SIB	B2	Design Restoration Project	0	0	0	5,000	0	0
DC - Mail	SIB	B2	Renovate Smithsonian Castle	0	0	0	0	20,000	55,000
Subtotal: SIB				0	0	0	5,000	20,000	55,000
Smithsonian Tropical Research Institute									
Panama	STRI	B2	Design Tivoli Interior/Exterior	100	0	0	0	0	0
Panama	STRI	B2	Repair Tivoli Interior/Exterior	0	0	0	0	1,500	0
Panama	STRI	A1	Repair Tivoli Structure	0	300	0	0	0	0
Panama	STRI	A2	Improve BCI Facility	0	0	150	0	0	0
Panama	STRI	B3	Repair Tupper Facade & Roof	0	0	275	540	0	0
Panama	STRI	A1	Repair Bocas Roof and Structure	400	0	0	0	0	0
Panama	STRI	B2	Repair Exteriors at BCI	0	0	445	0	0	0
Panama	STRI	B2	Improve BCI Access	100	0	0	0	0	0
Panama	STRI	B2	Improve Communications/OIT Systems	0	0	0	225	0	0
Panama	STRI	B3	Automate Lighting System/ Install Surge Protection	0	0	350	0	0	0
Subtotal: STRI				600	300	1,220	765	1,500	0
TOTAL: FACILITIES CAPITAL PROGRAM				82,869	139,000	252,715	271,330	262,095	296,650

SMITHSONIAN INSTITUTION FEDERAL CAPITAL PROGRAM

Program by Category

\$(000)s

Campus	Location	Priority	Project	FY03	FY04	FY05	FY06	FY07	FY08
REVITALIZATION									
MAJOR PROJECTS									
DC - Mall	AIB	B2	Restore Arts & Industries Building	0	0	8,000	40,000	60,000	47,000
New York, NY	CHM	B2	Mansion Electric Distribution & Lighting Upgrade/Exterior	0	0	750	750	0	0
DC - Mall	FGA	B1	Replace/Restore Roof Exterior	0	0	0	3,000	0	7,000
DC - Mall	HMSG	A2	Restore & Waterproof Plaza & Foundation Walls	0	0	0	0	0	20,000
Suitland, MD	MSC	B2	Upgrade Mechanical & Electrical Systems	0	0	0	0	0	0
All Facilities	MULTI	B	Implement Anti-Terrorism Security Improvements	0	10,100	29,355	0	0	0
All Facilities	MULTI	B	Modernize Security (upgrades to new systems)	999	0	1,000	1,000	1,000	1,000
DC - Mall	NASM	B2	Replace Mechanical & Electrical Systems	0	0	0	41,000	0	10,000
DC - Mall	NASM	B2	Fire Alarm Upgrade	0	0	0	4,000	0	0
DC - Mall	NMAH	B3	Renew Public Space/Upgrade Chiller Plant	0	5,500	10,000	22,000	0	0
DC - Mall	NMNH	A2	Ongoing Revitalization	10,000	11,000	37,600	38,000	33,000	30,000
DC - Rock Creek	NZP	A1	Asia I - Renovate Deer & Tapir	7,000	0	0	0	0	0
DC - Rock Creek	NZP	B1	Asia II & III New Elephant Yards and Holding	0	9,000	32,000	30,000	0	0
DC - Rock Creek	NZP	B1	Africa House Renovation	0	0	0	0	40,000	0
DC - Rock Creek	NZP	B1	Renovate Seal/Sea Lion & Lower Bear Areas	0	0	0	0	0	50,000
DC - Rock Creek	NZP	B1	Renovate Small Mammals	0	0	0	0	0	0
DC - Rock Creek	NZP	B1	Continue Revitalization of Major Structures	0	0	0	0	0	0
Front Royal, VA	NZPFR	A1	Construct Consolidated Maintenance Facility	0	0	0	0	0	4,700
DC - Gallery Place	POB	A1	Renovate Patent Office Building	25,000	48,000	44,400	0	0	0
DC - Mall	OUAD	B2	Replace Mechanical System & Roof	0	0	0	0	56,000	0
DC - Lafayette Park	RG	B2	Restore Renwick Gallery	0	0	0	20,000	0	0
Suitland, MD	SHF	B2	Revitalize Infrastructure	0	0	0	0	0	21,000
DC - Mall	SIB	B2	Renovate Smithsonian Castle	0	0	0	0	20,000	55,000
Subtotal, Major Revitalization				42,999	83,600	163,105	199,750	210,000	245,700

SMITHSONIAN INSTITUTION FEDERAL CAPITAL PROGRAM

Program by Category

\$(000)s

Campus	Location	Priority	Project	FY03	FY04	FY05	FY06	FY07	FY08
OTHER REVITALIZATION									
New York, NY	CHM	B2	Replace Mansion Boilers	0	0	0	260	0	0
New York, NY	CHM	C2	Upgrade Collection Storage and Perimeter Security	0	0	0	250	0	0
New York, NY	CHM	B3	Stabilize Mansion Fence	0	0	600	0	0	0
New York, NY	CHM	B1	Stabilize Garden Stairwalls	0	0	0	0	900	0
New York, NY	CHM	B2	Stabilize Mansion Sidewalks	0	0	0	450	0	0
New York, NY	CHM	B3	Ground Floor Accessibility Upgrades	700	0	0	0	0	0
New York, NY	CHM	B3	Restore Mansion Interior	300	0	0	0	0	0
New York, NY	CHM	B2	Complete Miller-Fox Renovation	0	0	1,300	0	0	0
DC - Mall	FGA	B2	Repair Utility System	0	0	0	500	0	0
DC - Mall	FGA	C1	Replace Gallery Lighting Systems	0	0	0	0	350	0
DC - Mall	FGA	C3	Correct Courtyard Window & Door Condensation	0	0	0	150	0	0
DC - Mall	FGA	B3	Install Courtyard Lift	0	0	0	70	0	0
DC - Mall	HMSG	B	Improve Interior Lighting	1,000	0	0	0	0	0
DC - Mall	HMSG	D	Improve Mall Master Raceway	0	0	0	0	0	300
DC - Mall	HMSG	C	Modernize Security	0	550	0	0	0	0
DC - Mall	HMSG	D	Repair Fountain	0	350	0	0	0	0
DC - Mall	HMSG	D	Replace Windows	0	0	350	0	0	0
DC - Mall	HMSG	B3	Renovate Front Entrance	0	0	850	0	0	0
Suitland, MD	MSC	C2	Upgrade Building CCTV and Pod Security	0	0	0	0	375	0
Suitland, MD	MSC	B3	Horticulture Support Building Stairs	0	90	0	0	0	0
Suitland, MD	MSC	C2	Repair North Service Road	0	0	0	510	0	0
Suitland, MD	MSC	B3	Improve Fire Detection & Protection	0	0	500	0	0	0
All Facilities	MULTI	A	Provide Guard Services, All Locations	350	600	700	700	700	700
All Facilities	MULTI	B2	Abate and Monitor Lead, all locations	300	300	400	500	500	500
All Facilities	MULTI	B2	Abate Asbestos, all locations	300	300	400	500	500	500
All Facilities	MULTI	B2	Monitor Asbestos, all locations	600	600	600	700	700	700
All Facilities	MULTI	B3	Improve Escalator/Elevator Safety	0	500	0	345	500	500
All Facilities	MULTI	B	Mall Wide Signage	0	1,000	1,000	0	0	0
All Facilities	MULTI	B	Miscellaneous Capital Repair	2,690	4,805	5,000	6,000	6,000	6,000
All Facilities	MULTI	B	Miscellaneous Capital Repair - FY02 roll forward	2,300	0	0	0	0	0
All Facilities	MULTI	A	Personnel, Reprographics and Library	3,500	4,000	5,000	5,000	5,000	5,000
All Facilities	MULTI	B	Program Oriented Alterations & Modifications	3,000	2,000	6,000	6,000	6,000	6,000
DC - Soldier's Home	MULTI	B1	Reglaze Curb Footing and Replace Floor, Greenhouses 9 & 10	0	0	0	150	0	0
Suitland, MD	MULTI	B3	Upgrade Fire Mains, All Suitland	0	0	400	0	0	0
DC - Mall	NASM	C1	Replace Dimmers/Ceiling in Theater	0	0	0	200	0	0
DC - Mall	NASM	C2	Modernize Security System	0	0	400	0	0	0
DC - Mall	NASM	B3	Upgrade Egress Signage & Travelway, Third Floor	0	0	100	0	0	0
DC - Mall	NASM	B3	Upgrade Accessible Egress	0	0	0	0	250	0
DC - Mall	NASM	C1	Complete Window Wall Renovation	125	0	0	0	0	0

SMITHSONIAN INSTITUTION FEDERAL CAPITAL PROGRAM

Program by Category

\$(000)s

Campus	Location	Priority	Project	FY03	FY04	FY05	FY06	FY07	FY08
DC - Mail	NASM	C1	Repair Irrigation System at Jefferson Drive	0	0	100	0	0	0
DC - Mail	NASM	C1	Repair Irrigation and Water Supply for Flight Garden	0	0	70	0	0	250
DC - Mail	NASM	A1	Repair Delta Solar Reflection Pool	0	0	0	0	200	0
DC - Mail	NASM	B3	Replace Ramsey Room Halon System	0	0	200	0	0	0
DC - Mail	NASM	A1	Waterproof Terrace	0	0	0	0	1,500	0
DC - Mail	NMAH	A2	Repair Mechanical & Electrical Systems	2,000	0	0	0	0	0
DC - Mail	NMAH	B3	Replace HVAC Controls	0	0	0	0	0	500
DC - Mail	NMAH	C1	Replace Emergency Generator	0	0	0	1,000	0	0
DC - Mail	NMAH	B2	Upgrade Collection Storage Electronic Security	0	0	500	0	0	0
DC - Mail	NMAH	A1	Repair Life Safety/Fire Protection Deficiencies	0	425	0	0	0	0
DC - Mail	NMAH	B1	Repair Constitution Ave. Entry	150	0	0	0	0	0
DC - Mail	NMAH	C1	Replace Trash Compactor & Repair Dock Paving	0	0	0	800	0	0
New York, NY	NMAI	B3	GGHC Accessibility	80	0	0	0	0	0
New York, NY	NMAI	B3	Modify Gallery Lighting	0	0	80	0	0	0
Suitland, MD	NMAI	B2	Install Backup Electric Service at CRC	100	0	0	0	0	0
DC - Mail	NMNH	B2	Upgrade Collection Storage Electronic Security	0	0	500	0	0	0
DC - Mail	NMNH	B2	Upgrade Hope Diamond Security	0	0	0	300	0	0
DC - Mail	NMNH	A3	Install Chemical Control Facility	0	0	0	1,000	0	0
DC - Mail	NMNH	B3	Install New Interior Handrails	0	0	600	0	0	0
DC - Mail	NMNH	B2	Replace West Loading Dock Lift	0	0	200	0	0	0
DC - Mail	NMNH	B1	Improve Ape House Ventilation	0	0	500	0	0	0
DC - Rock Creek	NZP	A1	Improve/Upgrade Site Utilities (include in projects)	0	0	500	500	1,000	1,000
DC - Rock Creek	NZP	A2	Improve Animal Containment Throughout Site	0	340	100	200	500	1,000
DC - Rock Creek	NZP	B3	Abate Asbestos & Lead	50	0	0	0	0	0
DC - Rock Creek	NZP	A2	Replace Hydraulics at Great Apes	0	0	160	0	0	0
DC - Rock Creek	NZP	A2	Replace Cheetah Fencing	0	0	150	0	0	0
DC - Rock Creek	NZP	A2	Reopen Forest Carnivore Trail	0	0	0	0	120	100
DC - Rock Creek	NZP	B2	Amazonia: Replace Railings	0	0	0	0	200	0
DC - Rock Creek	NZP	B3	Replace Traffic Signs	0	0	0	350	0	0
DC - Rock Creek	NZP	A2	Renovate/Improve Public Restrooms and Amenities	0	0	0	0	0	0
DC - Rock Creek	NZP	A2	Renovate/Improve Staff Restrooms and Amenities	0	0	0	0	0	0
DC - Rock Creek	NZP	A2	Renovate Quarantine	0	0	250	0	0	0
DC - Rock Creek	NZP	A1	Repair Seal/Sea Lion & Beaver/Otter (Emergency)	75	425	0	0	0	0
DC - Rock Creek	NZP	A	Miscellaneous Capital Repairs	325	350	350	350	500	500
DC - Rock Creek	NZP	A3	Improve Fire Protection Systems	250	0	350	250	200	500
DC - Rock Creek	NZP	A3	Vet Hospital Sprinkler & Smoke Detection	200	0	0	0	0	0
DC - Rock Creek	NZP	A1	Waterproof Lion/Tiger Moat & Planter	0	0	900	0	0	0
DC - Rock Creek	NZP	B1	Waterproof Lemur Island	0	0	500	500	0	0
DC - Rock Creek	NZP	A1	Replace Roof & Skylight Elephant, Reptile, Sm. Mammal	0	0	250	500	500	500
DC - Rock Creek	NZP	A3	Renovate Auditorium & Seating for ADA	0	0	0	1,250	0	0
DC - Rock Creek	NZP	A3	Improve Accessibility (Include in projects)	100	0	100	100	100	100

SMITHSONIAN INSTITUTION FEDERAL CAPITAL PROGRAM

Program by Category

\$(000)s

Campus	Location	Priority	Project	FY03	FY04	FY05	FY06	FY07	FY08
Front Royal, VA	NZPFR	B3	Install/Improve Fire Protection Systems	100	100	100	100	100	100
DC - Mall	QUAD	A2	Replace Fire Alarm System	0	1,500	0	0	0	0
DC - Mall	QUAD	B2	Upgrade Utility Systems	0	0	0	0	0	8,500
DC - Mall	QUAD	C2	Replace Ripley Kiosk Elevator	0	0	0	0	300	0
DC - Mall	QUAD	A2	Replace Steam Humidification System	0	0	950	0	0	0
DC - Mall	QUAD	D	Improve NMAA Courtyard Access	0	0	0	100	0	0
DC - Mall	QUAD	C2	Upgrade Exhibit Electronic Security	0	0	0	0	400	0
DC - Mall	QUAD	C1	Repair Interior Stone	0	0	0	0	250	0
DC - Mall	QUAD	B2	Haupt Garden Fountain	0	0	0	300	0	0
DC - Lafayette Park	RG	B3	Life Safety Improvements, inc. Cooling Tower Replacement	0	0	2,000	0	0	0
Hawaii	SAQ	B2	Install SMA Emergency Generator	0	0	0	200	0	0
Hawaii	SAO	B1	Oxygen Enrichment, Summit Facility	50	0	100	0	0	0
Tuscon, AZ	SAO	C2	Replace HVAC	0	0	200	0	300	0
Tuscon, AZ	SAO	B2	Improve Water System	0	0	375	0	0	0
Tuscon, AZ	SAQ	B2	Install Base Camp Microwave Link	0	0	150	0	0	0
Tuscon, AZ	SAO	B2	Install MMT Rotary Uninterruptible Power	0	0	150	0	0	0
Tuscon, AZ	SAO	B2	Replace FM Repeater	0	0	60	0	0	0
Tuscon, AZ	SAO	B1	Abate Asbestos Throughout Site	0	0	100	0	0	0
Tuscon, AZ	SAO	B1	Repair/Improve Whipple Road	0	0	1,500	0	0	0
Edgewater, MD	SERC	B3	Install Utility Connection to Waterfront	0	0	550	0	0	0
Edgewater, MD	SERC	B2	Repair Sanitary Sewer	450	0	500	0	0	0
Edgewater, MD	SERC	B3	Install Perimeter Fire Lane	0	0	0	1,750	0	0
Edgewater, MD	SERC	B2	Install Perimeter CCTV	0	0	275	0	0	0
Edgewater, MD	SERC	B3	Improve Security Lighting	0	0	0	0	100	0
Edgewater, MD	SERC	B3	Improve Entrance Road	0	500	500	500	0	0
Edgewater, MD	SERC	B2	Consolidate and Improve Alcohol Storage	0	600	0	0	0	0
Edgewater, MD	SERC	B3	Improve Signage, Security and Accessibility	0	0	200	830	400	0
Edgewater, MD	SERC	B2	Repair Corn Island Facilities	0	0	200	500	0	0
Edgewater, MD	SERC	C2	Improve Access to Southern Site	0	0	0	1,000	0	0
Suitland, MD	SHF	B3	Provide Surge Protection for Site	0	0	0	750	0	0
Suitland, MD	SHF	B2	Improve Environmental Conditions, Bldg 21	0	0	0	150	0	0
Suitland, MD	SHF	B2	Improve Environmental Conditions, Bldgs 15/16	0	0	0	300	0	0
Suitland, MD	SHF	B2	Repair HVAC, Buildings 22 & 23	0	0	600	0	0	0
Suitland, MD	SHF	B3	Abate Asbestos Bldgs. in 15, 16, &18	0	0	500	500	500	0
Suitland, MD	SHF	B3	Monitor Asbestos Condition Throughout Site	0	0	150	150	150	0
Suitland, MD	SHF	B3	Abate Asbestos in Building 16 Collection	0	0	750	0	0	0
Suitland, MD	SHF	C1	Install Emergency Intercom	0	0	120	0	0	0
Suitland, MD	SHF	B1	Renovate Bulding 25	0	0	1,250	0	0	0
Suitland, MD	SHF	B3	Upgrade Fire Alarm System	0	500	0	0	0	0
Suitland, MD	SHF	B3	Provide Central Fire Pump	0	0	750	0	0	0
Suitland, MD	SHF	B1	Repair Building 10 Roof	0	300	200	0	0	0

SMITHSONIAN INSTITUTION FEDERAL CAPITAL PROGRAM

Program by Category

\$(000)s

<i>Campus</i>	<i>Location</i>	<i>Priority</i>	<i>Project</i>	<i>FY03</i>	<i>FY04</i>	<i>FY05</i>	<i>FY06</i>	<i>FY07</i>	<i>FY08</i>
Panama	STRI	B2	Improve Communications/OIT Systems	0	0	0	225	0	0
Panama	STRI	B3	Automate Lighting System/ Install Surge Protection	0	0	350	0	0	0
Panama	STRI	B2	Repair Tivoli Interior/Exterior	0	0	0	0	1,500	0
Panama	STRI	A1	Repair Tivoli Structure	0	300	0	0	0	0
Panama	STRI	A2	Improve BCI Facility	0	0	150	0	0	0
Panama	STRI	A1	Repair Bocas Roof and Structure	400	0	0	0	0	0
Panama	STRI	B3	Repair Tupper Facade & Roof	0	0	275	540	0	0
Panama	STRI	B2	Repair Extérieurs at BCI	0	0	445	0	0	0
Panama	STRI	B2	Improve BCI Access	100	0	0	0	0	0
Subtotal, Other Revitalization				19,595	20,435	43,410	37,280	30,595	33,250

TOTAL REVITALIZATION				62,594	104,035	206,515	237,030	240,595	278,950
CONSTRUCTION									
DC - Mall	NMAI		Construct Mall Museum	10,000					
Suitland, MD	MSC		Construct Pod 5	2,000	22,000	6,000			
Tuscon, AZ	SAO		VERITAS Infrastructure and Site Preparation	0	0	4,500	0	0	0
TOTAL CONSTRUCTION				12,000	22,000	10,500	0	0	0

FACILITIES PLANNING & DESIGN

DC - Mall	AIB	B2	Design Major Restoration	0	0	2,000	0	0	0
New York, NY	CHM	B2	Complete Miller-Fox Renovation Design	135	0	0	0	0	0
New York, NY	CHM	B2	Mansion Electric Distribution & Lighting Upgrade Design	300	0	0	0	0	0
New York, NY	CHM	B3	Complete Construction Documents for Ex. Stone Project	0	0	100	0	0	0
New York, NY	CHM	C3	Design Mansion Library Renovation	0	0	200	0	0	2,000
New York, NY	CHM	B2	Design Mansion Boiler Replacement	0	15	0	0	0	0
DC - Mall	FGA	B1	Design Replace/Restore Roof Exterior	0	0	500	0	0	0
DC - Mall	HMSG	A2	Design Restore & Waterproof Plaza & Foundation Walls	0	0	1,000	0	0	0
Suitland, MD	MSC	B2	Design Upgrade Mechanical & Electrical Systems	0	0	1,000	0	0	4,000
All Facilities	MULTI	B	Facility Planning and Design, Revitalization	2,590	4,500	5,000	5,000	5,000	5,000
All Facilities	MULTI	B	Facility Modifications Planning and Design, inc. Const. Planning	0	500	500	500	500	500
All Facilities	MULTI	B	Real Property and Space Utilization Studies	450	400	150	550	150	300
All Facilities	MULTI	B	Comprehensive Facilities Master Development Planning Studies	0	1,700	2,000	1,100	600	850
All Facilities	MULTI	B	Design Anti-Terrorism Security Improvements	0	0	0	0	0	0
DC - Mall	NASM	B2	Design Mechanical System, Basement & 3rd Floor	0	0	4,000	0	0	0
DC - Mall	NMAH	B3	Design Public Space Renewal	0	4,000	1,000	0	0	0
DC - Mall	NMAH	B3	Study Fresh Air Intake Protection	0	0	2,000	0	0	0

SMITHSONIAN INSTITUTION FEDERAL CAPITAL PROGRAM

Program by Category

\$(000)s

Campus	Location	Priority	Project	FY03	FY04	FY05	FY06	FY07	FY08
DC - Mall	NMAH	C3	Study Convsn to Hot Water Re-Heat System	0	0	0	0	5,000	0
DC - Mall	NMNH	B3	Design Ongoing Revitalization	0	0	6,000	5,000	3,000	3,000
DC - Mall	NMNH	A3	Design Chemical Control Facility	0	0	200	0	0	0
DC - Rock Creek	NZP	A1	Asia I - Design Deer & Tapir Renovation	0	0	0	0	0	0
DC - Rock Creek	NZP	B1	Design Africa House Renovation (Existing Elephant House)	800	800	5,000	0	0	0
DC - Rock Creek	NZP	B1	Asia II & III Design Elephant Relocation	2,500	0	0	0	0	0
DC - Rock Creek	NZP	B1	Design Seal/Sea Lion & Lower Bear Area	1,000	0	800	10,000	0	0
DC - Rock Creek	NZP	A2	Advance Planning and Design for Misc. Projects	0	500	1,250	1,250	1,250	1,250
DC - Rock Creek	NZP	A1	Design Small Mammals Renovation	0	0	0	800	6,000	0
DC - Rock Creek	NZP	A1	Design Reptile & Invertebrates Renovation	0	0	0	0	0	800
DC - Rock Creek	NZP	A1	Continue Design for Revitalization of Major Structures (Brid, Ape)	0	0	0	0	0	0
DC - Rock Creek	NZP	A1	Design Roof & Skylight Replacement	400	500	0	0	0	0
DC - Rock Creek	NZP	B1	Design Lemur Island Waterproofing	0	0	500	0	0	0
DC - Rock Creek	NZP	B1	Design Road & Bridge Repair	0	50	0	100	0	0
DC - Rock Creek	NZP	B3	Update Zoo Master Plan, Rock Creek	0	0	500	1,000	0	0
DC - Rock Creek	NZP	B2	Design Mechanical System & Roof	0	0	0	4,000	0	0
DC - Lafayette Park	QUAD	B2	Design Major Restoration	0	0	2,000	0	0	0
DC - Mall	RG	B2	Design Restoration Project	0	0	0	5,000	0	0
DC - Mall	SIB	B2	Design Tivoli Interior/Exterior	100	0	0	0	0	0
Panama	STRI	B2							
TOTAL FACILITIES PLANNING & DESIGN				8,275	12,965	35,700	34,300	21,500	17,700
TOTAL, FACILITIES CAPITAL				82,869	139,000	252,715	271,330	262,095	296,650

SMITHSONIAN INSTITUTION
Capital Asset Plan (Exhibit 300) for Revitalization and Construction
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PART I. A. SUMMARY OF PROJECT INFORMATION				
Location	Gallery Place, Washington, DC			
Program Unit Sponsor	Smithsonian American Art Museum & National Portrait Gallery			
Account Title	Facilities Capital, Revitalization			
Account Identification Code	XXXXXXXXXX			
Name of Project	Renovate Patent Office Building			
Project Number	943402			
Project Partners				
This Project Is:	New Construction:		Revitalization of Existing Facility:	XXX
Project/Useful segment is funded:	Incrementally:	XXX	Fully:	
Did the Capital Planning Board approve the project?				Date: 1998
Did the Capital Planning Board approve the current funding proposal?				Date: 2001
Did the Smithsonian Board of Regents approve the project?				Date: 2000
Did Congress authorize the project?	Authorization for courtyard/auditorium pending			Date:

B. PROJECT BASELINE		
Initial Baseline Date: July 1998	Date of Baseline Change: June 2000	Indicate Here if Preliminary:
<p>1. Project Scope (specific description of work effort, including square footage involved, historical significance of existing building, project phases if applicable, highlight changes from original baseline):</p> <p>The 165 year-old Patent Office Building (POB), the third oldest public building in the Nation's Capitol, sits on the block bounded by G, F, 7th and 9th Streets, NW, Washington, DC. Built between 1836 and 1867, the marble, granite and sandstone neoclassical structure was also the site of President Abraham Lincoln's Inaugural Ball. Originally designed to exhibit models of inventions patented in the United States, in 1964 the building was converted to museum space and now houses the Smithsonian American Art Museum and the National Portrait Gallery. The Smithsonian American Art Museum houses paintings, sculpture, graphic art, photography and folk art dedicated to the arts and artists of the United States from colonial times to the present. The National Portrait Gallery exhibits portraits of major figures in American history and culture. The building's four stories and basement cover approximately 30,900 square meters (332,000 square feet) and enclose a central courtyard. The POB is listed on the National Register of Historic Places and is a National Historic Landmark. Average annual visitation for both museums is 430,000.</p> <p>Phase I: The project will create a main accessible entrance and improve accessibility throughout the building. It will replace mechanical and electrical equipment, including boilers, pipes, air-handling units, chillers, pumps, electrical transformers, and substations, and the fire pumps with new energy-efficient equipment. It will install a new air-distribution and control system, supply and return air grilles, and temperature and humidity controls by zone. Replacement of the cooling tower will occur and will change the location of the mounting configuration to eliminate leaks. It will repair exterior masonry, replace windows, restore elevators, and improve functionality and access by providing accessible restrooms adjacent to each lobby and in event spaces. It will abate hazardous materials such as CFCs and asbestos, and convert administrative space to public space. In 2000, a decision was made to also relocate some mechanical and electrical equipment to new space beneath the courtyard so that the adjacent space can be used for public programming. Finally, the restoration of interior finishes will occur after installation of new systems and other construction.</p> <p>Phase II: The Institution also plans to construct a glass enclosure over the building's courtyard, install a modern kitchen and restaurant that will serve the courtyard area. This work will occur concurrently, but will be funded from private sources.</p>		
2. Detail of Overall Project Schedule		Month & Year (total project)
Planning/Design Start Date: All Associated Projects		1994
Design Completion Date: Roof: 03/97 Demo: 03/00 Stone & Window: 01/01		Ph I: Sept 2002; Ph II: Aug 2004
Construction Start Date: Roof: 11/97 Demo: 04/01 Stone & Window: 11/01		March 2003
Construction Completion Date: Roof: 05/00 Demo: 09/02 Stone & Window: 04/03		March 2006
Building Occupancy Date:		March 2006
Public Opening Date (if applicable):		July 2006

SMITHSONIAN INSTITUTION
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3. Detail of Total Project Cost Estimate		Amount in \$Millions		
CAPITAL COSTS		Phase I	Phase II	TOTAL
Planning/Design		14.7	3.0	17.7
Revitalization/Construction (includes art storage during construction)		123.5	28.0	151.5
Contingency	Percentage: 12.5% of 151.1	15.5	3.2	18.7
Construction Management	Percentage: 8% of 170.2	11.0	2.3	13.3
Building Commissioning	Percentage: 1% of 170.2	1.3	0	1.3
TOTAL CAPITAL COSTS:		166.0	36.5	202.5
Non-capital Costs (fundraising, relocation, one-time occupancy costs, exhibits installation)			13.5	13.5
TOTAL PROJECT COST		166.0	50.0	216
Explanation of Basis/methodology for Cost Estimates (indicate stage of design or other assumptions used) Project cost estimate is based on 95% design completion. Phase I is the revitalization program to be funded from the Facilities Capital account (Federal); Phase II will be privately funded. Drawings and specifications are now 100% complete.				

C. SUMMARY OF FUNDING FOR PROJECT STAGES									
\$ Millions (1 decimal place)	Prior	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	Outyears	Total
INITIAL PROJECT BASELINE:	FY: 2003	Request to OMB						Date: Sept 2001	
FEDERAL Capital Costs	33.6	15.0	45.0	38.0	34.4				166.0
TRUST Capital Costs			3.0	47.0					50.0
TOTAL CAPITAL COSTS									
Non-Capital Costs									
TOTAL PROJECT FUNDS:	33.6	15.0	48.0	85.0	34.4				216.0
PRIOR BUDGET REQUEST	FY: 2003	Request to Congress						Date: Feb 2002	
FEDERAL Capital Costs	33.6	15.0	25.0	58.0	34.4				166.0
TRUST Capital Costs		.2	10.8	25.0	.5				36.5
TOTAL CAPITAL COSTS	33.6	15.2	35.8	83.0	34.9				202.5
Non-Capital Costs					13.5				13.5
TOTAL PROJECT FUNDS:	33.6	15.2	35.8	83.0	48.4				216.0
CURRENT BUDGET REQUEST	FY: 2004	Request to OMB						Date: Sept 2002	
FEDERAL Capital Costs	33.6	15.0	25.0	48.0	44.4				166.0
TRUST Capital Costs		.2	10.8	25.0	.5				36.5
TOTAL CAPITAL COSTS	33.6	15.2	35.8	73.0	44.9				202.5
Non-Capital Costs					13.5				13.5
TOTAL PROJECT FUNDS:	33.6	15.2	35.8	73.0	58.4				216.0
CHANGES (Prior Request to Current Request)									
FEDERAL Capital Costs				-10.0	+10.0				0
TRUST Capital Costs				0	0				0
TOTAL CAPITAL COSTS				-10.0	+10.0				0
Non-Capital Costs					0				0
TOTAL PROJECT FUNDS:				-10.0	+10.0				0
Explanation of Baseline Change (detail of factors that affected changed scope, schedule and/or costs): A portion of the work originally planned for FY 2004 will be deferred to FY 2005. This work includes the fit out of the 1 st and 2 nd floors of the building.									

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D. OPERATING COST PROJECTIONS			
ESTIMATED ANNUAL OPERATING COST	Date of First Full Year Occupancy (FY): 2006	FTE	Amount (\$M)
Programmatic Costs (Museum Federal and Trust costs)		262	42.70
Facilities Costs (Maintenance, Operations Security & Support):		125	7.60
Central SI Support Costs (Overhead):		1	.04
TOTAL ANNUAL OPERATING COST:		388	50.34
Explanation of basis/methodology for cost estimates (assumptions used, notes on unit preparing estimates)			
<p>These are very preliminary estimates based on square footages and current experience for each activity. Operating costs for the newly renovated and reconfigured building will be refined now that design is complete.</p>			

E. SUMMARY OF OPERATIONS FUNDING																
\$ Millions (1 decimal place)	Prior		FY 03		FY 04		FY 05		FY 06		FY 07		FY 08		Outyears	
	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$
INITIAL OPERATIONS ESTIMATE:	FY: 2003				Request to OMB								Date: Sept 2001			
TOTAL FEDERAL OPERATING COST:	214	15.5	245	28.0	247	23.2	247	18.9	247	18.9	247	18.9	247	18.9	247	18.9
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:	214	15.5	245	28.0	247	23.2	247	18.9	247	18.9	247	18.9	247	18.9	247	18.9
PRIOR BUDGET REQUEST	FY: 2003				Request to Congress								Date: March 2002			
TOTAL FEDERAL OPERATING COST:	160	11.6	160	12.0	247	23.2	247	18.9	247	18.9	247	18.9	247	18.9	247	18.9
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:	160	11.6	160	12.0	247	23.2	247	18.9	247	18.9	247	18.9	247	18.9	247	18.9
CURRENT BUDGET REQUEST	FY: 2004				Request to OMB								Date: Sept 2002			
TOTAL FEDERAL OPERATING COST:	160	11.6	160	12.0	160	12.9	205	27.2	350	37.3	350	28.3	350	27.7	350	27.7
TOTAL TRUST OPERATING COST:	20	10.7	21	10.2	20	11.3	28	11.9	38	13.0	42	13.2	42	13.2	42	13.2
TOTAL ANNUAL OPERATING COST:	180	22.3	181	22.2	180	24.2	233	39.1	388	50.3	392	41.5	392	40.9	392	40.9
CHANGES (Prior Request to Current Request) FEDERAL ONLY																
TOTAL FEDERAL OPERATING COST:	-54	-3.9	-85	-16.0	-87	-10.3	-42	+8.3	+103	+18.4	+103	+9.4	+103	+8.8	+103	+8.8
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:	-54	-3.9	-85	-16.0	-87	-10.3	-42	+8.3	+103	+18.4	+103	+9.4	+103	+8.8	+103	+8.8
Explanation of Change:																
The current schedule calls for reopening the building in FY 2006, instead of FY 2005 as forecast when the FY 2003 OMB budget was prepared. Additional costs for operations of the covered courtyard and auditorium are now included in the estimates, and represent the staff and cost increases reflected beginning in FY 2006.																

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PART II: JUSTIFICATION AND OTHER INFORMATION

A. Justification (describe why the project is needed, including specific dates required, programs supported, and alternatives analysis):

The building's mechanical and electrical systems are more than 30 years old and break down frequently. The inefficient two-pipe heating, ventilation and air conditioning system cannot meet the current heating and cooling loads of the building. Air circulation is inefficient, humidity control is limited, and condensation is a major problem. The cooling tower leaks and the chiller plant contains chlorofluorocarbons (CFCs), which must be phased out to meet environmental laws.

The electrical distribution system is overloaded, inadequate, and unsafe. Clearances around transformers do not meet current code requirements. Switchgear, panel boards, and distribution networks are deteriorated and obsolete. Replacement parts are no longer available.

Other utility systems that are seriously deteriorated include fire protection, plumbing, steam distribution, and communication systems. Some of the fire alarm wiring is original to the building and contributes to system malfunctions. The building's elevators break down frequently, thereby reducing public access. The building's façade has been damaged by acid rain and air pollution, the window frames are deteriorated and failing, and several interior surfaces have been severely damaged by leaks and condensation. The building's main entrances and most restrooms are not accessible to persons with disabilities and do not meet current codes and standards. Asbestos and lead paint are present throughout the building, and must be abated before repairs can be accomplished.

B. Project/Program Management (indicate key staff/organization responsible for this project):

Project Executive (if applicable):	Sheryl Kolasinski, Director, Office of Project Management, OFEO
Project Manager:	Steven Groh, Office of Project Management, OFEO
Design Manager:	Harminder Jolly & Joy Jordan, Office of Engineering, Design & Construction, OFEO
Construction Manager (Res. Engineer):	Sarah Drumming, Office of Engineering, Design & Construction, OFEO
Program Manager/Liaison & Unit	Marc Pachter, Director, NPG; Elizabeth Broun, Director, SAAM

Other Management Plans (Executive/Steering Committees, etc.)

Meeting monthly, the POB Oversight Committee includes senior SI, SAAM, NPG, Office of Contracting (OCon), Office of General Counsel (OGC), Office of the Chief Financial Officer (OCFO), Office of Public Affairs, and OFEO management, and others as necessary. The purpose is to provide overall review of project progress and to make policy and financial decisions. Preceding the Oversight Committee meetings, monthly Executive Committee meetings are held, and include project staff as well as working level staff from the museums, OFEO, OCon, Office of Architectural History and Historic Preservation (AHHP), and others as needed, to review construction progress, resolve problems, and plan for building occupation upon completion of construction.

C. Acquisition Plan (describe proposed contracting methodology):

Bids for the main construction package, to revitalize the interior of the building, shall be solicited via a Request for Proposal (RFP) in Commerce Business Daily. Competition will be based upon price as well as on the technical ability of offerors. The contract will be awarded on a firm fixed price basis for a base construction package, with distinct packages outlined as options for subsequent phases based upon available funding to complete construction.

PART III: CURRENT STATUS (describe performance against milestones)

The Gross Demolition Project, which includes the complete removal of mechanical, electrical and plumbing systems, floor tile removal, and abatement of hazardous material is 88.5% complete. Original contract award was \$7.3M. Negotiated proposals to date total \$1.7M, of which \$563K represented a delay claim, which revised the completion date from February 25, 2002 to September 13, 2002.

The Exterior Stone and Window Renovation Project is approximately 19% complete. The contract award was \$8.6M. The contractor is currently 51 days behind schedule, and a recovery schedule to maintain the original completion date of April 28, 2003 is being requested.

The main construction package, to revitalize the interior of the building, is progressing towards bid, with 100% construction documents complete. Historic Preservation processes are on-going, with SI as lead agency, NCPC a cooperating agency. SI is following the intent of the National Environmental Policy Act process. Archeological research did not indicate a recommendation for excavation of the courtyard. Advertisement for bid shall follow the public comment period for the environmental assessment process, anticipated in September 2002. Construction award is expected March 2003, and completion of construction anticipated March 2006, following a 36-month construction process. Desired occupancy of the structure is July 5, 2006.

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PART I. A. SUMMARY OF PROJECT INFORMATION				
Location	Chantilly, Virginia, Dulles Airport			
Program Unit Sponsor	National Air and Space Museum			
Account Title	Construction			
Account Identification Code				
Name of Project	Steven F. Udvar-Hazy Center			
Project Number	995301			
Project Partners				
This Project Is:	New Construction:	XXX	Revitalization of Existing Facility:	
Project/Useful segment is funded:	Incrementally:	XXX	Fully:	
Did the Capital Planning Board approve the project?			Date:	1996
Did the Capital Planning Board approve the current funding proposal?			Date:	May 2002
Did the Smithsonian Board of Regents approve the project?			Date:	1983
Did Congress authorize the project?			Design	Date: 1993
			Construction	Date: October 1, 1996

B. PROJECT BASELINE		
Initial Baseline Date: January 2001	Date of Baseline Change: March 2001	Indicate Here if Preliminary:
<p>1. Project Scope (specific description of work effort, including square footage involved, historical significance of existing building, project phases if applicable, highlight changes from original baseline):</p> <p>Public Law 103-57, signed on 2 August 1993, authorized the Smithsonian Institution to plan and design an Air and Space Museum extension at Washington Dulles International Airport and authorized appropriations of \$8 million for this purpose. Public Law 104-222, signed on 1 October 1996, authorized the Smithsonian to construct, at no cost to the government, the National Air and Space Museum (NASM) Dulles Center at Washington Dulles International Airport. The Dulles Center will provide the restoration facility capable of preserving the artifacts in the collection. The facility will be located on an approximately 176.5-acre site on Dulles International Airport property near the intersection of Route 28 and Route 50 in northern Virginia. . When fully completed, the Hazy Center will include 760,000 square feet of space for exhibit hangars, restoration shop, collection storage, classrooms, archives, large-format theater, restaurants, museum stores. Over 180 aircraft and 100 spacecraft will be on display, including the Space Shuttle <i>Enterprise</i>, an SR-71 Blackbird reconnaissance aircraft, the Dash 80 prototype of the Boeing 707, the B-17 <i>Swoops</i>, an F-4 Phantom fighter, and the B-29 Superfortress <i>Enola Gay</i>. More than 81% of the artifacts at the Garber Facility will be transferred to the Hazy Center. Annual visitation is forecasted in the 3-4 million range.</p> <p>Phase I consists of a main hangar and a space hangar; a large-format theater, restaurant and retail space; a central utilities plant; fuselage, tower and amenities. This portion of the project is awarded with project completion date of December 5, 2003.</p> <p>Phase two construction will consist of the addition of the restoration hangar, an object processing/archives center, a study collection, furniture, and support facilities.</p>		
2. Detail of Overall Project Schedule		Month & Year
Planning/Design Start Date:		1996
Design Completion Date:		2000
Construction Start Date:		April 2001
Construction Completion Date:		December 2003 – Phase 1
Building Occupancy Date:		March 2003 – Phase 1
Public Opening Date:		December 2003 – Phase 1

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3. Detail of Total Project Cost Estimate		Amount in \$Millions
CAPITAL COSTS		
Planning/Design		15.0
Revitalization/Construction (includes \$34M site development by Virginia)		209.5
Contingency	Percentage: 8% of 178.5 million	14.0
Construction Management	Percentage: 9.2% of 178.5 million	16.5
Building Commissioning	Percentage: 1% of 178.5 million	2.0
TOTAL CAPITAL COSTS:		257.0
Non-capital Costs (fundraising, relocation, one-time occupancy costs, permits/fees, exhibit installation and Davis-Bacon.		54.5
TOTAL PROJECT COST		311.5
Explanation of Basis/methodology for Cost Estimates (indicate stage of design or other assumptions used)		
Design complete, Base bid, Alternates 4, 9, 11 and 12 awarded have been awarded. The Commonwealth of Virginia will provide site development worth approximately \$34 million. All other alternates will be awarded when funds become available.		

C. SUMMARY OF FUNDING FOR PROJECT STAGES									
\$ Millions (1 decimal place)	Prior	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	Outyears	Total
INITIAL PROJECT BASELINE:	FY: 2003							Date: Sept 2001	
FEDERAL Capital Costs	8.0								8.0
TRUST Capital Costs	232.0	13.3							245.3
TOTAL CAPITAL COSTS	240.0	13.3							253.3
Non-Capital Costs		46.0							46.0
TOTAL PROJECT FUNDS:	240.0	13.3							299.3
PRIOR BUDGET REQUEST	FY: 2003							Date: Feb 2002	
FEDERAL Capital Costs	8.0								8.0
TRUST Capital Costs	231.0	18.0							249
TOTAL CAPITAL COSTS	239.0	18.0							257
Non-Capital Costs		54.5							54.5
TOTAL PROJECT FUNDS:	239.0	72.5							311.5
CURRENT BUDGET REQUEST	FY: 2004							Date: Sept 2002	
FEDERAL Capital Costs	8.0								8.0
TRUST Capital Costs	231.0	18.0							249
TOTAL CAPITAL COSTS	239.0	18.0							257
Non-Capital Costs		54.5							54.5
TOTAL PROJECT FUNDS:	239.0	72.5							311.5
CHANGES (Prior Request to Current Request)									
FEDERAL Capital Costs									
TRUST Capital Costs									
TOTAL CAPITAL COSTS									
TRUST Non-Capital Costs									
TOTAL PROJECT FUNDS:									
Explanation of Baseline Change (detail of factors that affected changed scope, schedule and/or costs):									
Change from initial baseline due to full costs for Davis-Bacon Act requirements.									

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D. OPERATING COST PROJECTIONS			
ESTIMATED ANNUAL OPERATING COST	Date of First Full Year Occupancy (FY): 2005	FTE	Amount (\$M)
Programmatic Costs (Museum Federal and Trust costs)		82	12.3
Facilities Costs (Maintenance, Operations Security & Support):		7	4.0
Central SI Support Costs (Overhead):		1	.1
TOTAL ANNUAL OPERATING COST:		90	16.4
Explanation of basis/methodology for cost estimates (assumptions used, notes on unit preparing estimates): Program costs based on staffing levels needed to manage new facility and costs to outsource facilities management services. Facilities costs are based on outsourcing security operations and most current utility costs. Outsourcing costs are based on independent study prepared in FY 1999.			

E. SUMMARY OF OPERATIONS FUNDING																
\$ Millions (1 decimal place)	Prior		FY 03		FY 04		FY 05		FY 06		FY 07		FY 08		Outyears	
	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$
INITIAL OPERATIONS ESTIMATE:	FY: 2003				Request to OMB								Date: Sept 2001			
TOTAL FEDERAL OPERATING COST:	61	6.3	72	16.0	81	16.0	81	16.2	81	16.0	81	16.4	81	16.4	81	16.4
TOTAL TRUST OPERATING COST:	1	.2	4	.4	7	.5	7	.5	7	.5	7	.5	7	.5	7	.5
TOTAL ANNUAL OPERATING COST:	62	6.5	76	16.4	88	16.5	88	16.7	88	16.5	88	16.9	88	16.9	88	16.9
PRIOR BUDGET REQUEST	FY: 2003				Request to OMB								Date: Sept 2001			
TOTAL FEDERAL OPERATING COST:	61	6.3	72	16.0	81	16.0	81	16.2	81	16.0	81	16.4	81	16.4	81	16.4
TOTAL TRUST OPERATING COST:	1	.2	4	.4	7	.5	7	.5	7	.5	7	.5	7	.5	7	.5
TOTAL ANNUAL OPERATING COST:	62	6.5	76	16.4	88	16.5	88	16.7	88	16.5	88	16.9	88	16.9	88	16.9
CURRENT BUDGET REQUEST	FY: 2004				Request to OMB								Date: Sept 2002			
TOTAL FEDERAL OPERATING COST:	60	6.8	71	12.3	79	19.7	83	15.9	86	16.5	89	16.7	91	17.9	91	16.3
TOTAL TRUST OPERATING COST:	1	.2	4	.4	7	.5	7	.5	7	.5	7	.5	7	.5	9	.6
TOTAL ANNUAL OPERATING COST:	61	7.0	75	12.7	86	20.2	90	16.4	93	17.0	96	17.2	98	18.4	100	16.9
CHANGES (Prior Request to Current Request)																
TOTAL FEDERAL OPERATING COST:	-1	+5	-1	-3.7	-2	+3.7	+2	-.3	+5	+5	+8	+3	+10	+1.5	+10	-.1
TOTAL TRUST OPERATING COST:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL ANNUAL OPERATING COST:	-1	+5	-1	-3.7	-2	+3.7	+2	-.3	+5	+5	+8	+3	+10	+1.5	+10	-.1

Explanation of Change:

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PART II: JUSTIFICATION AND OTHER INFORMATION

A. Justification (describe why the project is needed, including specific dates required, programs supported, and alternatives analysis):

The National Air and Space Museum shall commemorate the national development of aviation and space flight and will educate and inspire the nation by:

- Preserving and displaying aeronautical and space flight equipment and data of historical interest and significance to progress of aviation and space flight.
- Developing educational materials and conducting programs to increase the public's understanding of, and involvement in, the development of aviation and space flight.
- Conducting and disseminating new research in the study of aviation and space flight and their related technologies.

The public opening in December 2003 will celebrate the centennial anniversary of the Wright brothers famous flight in Kitty Hawk. To achieve the Institution's goal of Public Impact, NASM is focusing its new resources on installing the first exhibits, preliminary educational programs and visitor support services for the new Steven F. Udvar-Hazy Center. The Center will house the Museum's collections and restoration facilities, enabling the Museum to exhibit over 2,600 artifacts, including its largest aircraft and spacecraft. Resources will also be dedicated to providing building management and security for the new facility, to meet the goal of Management Excellence. To meet this challenge NASM will outsource these functions, a first at this scale within the Smithsonian Institution.

B. Project/Program Management (indicate key staff/organization responsible for this project):

Project Executive (if applicable):	Sheryl Kolasinski, Director , Office of Project Management, OFEO (Acting)
Project Manager:	Donald W. Dormstetter, Office of Project Management, OFEO
Design Manager:	Melinda Humphry-Becker, Office of Engineering, Design and Construction, OFEO
Construction Manager (Res. Engineer):	Vince Cogliano, Office of Engineering, Design and Construction, OFEO
Program Manager/Liaison & Unit	Linda Ezell, NASM

Other Management Plans (Executive/Steering Committees, etc.)

Oversight Committee includes senior SI, NASM, OFEO and Office of Contracting (OCon) staff. It meets as needed to provide overall review of project progress and make financial and policy decisions.

Executive Construction Project Committee includes project staff as well as working level staff from the Museum, OFEO, OCon, and others as needed. It meets monthly to review construction progress, resolve problems, and plan for building occupation and operation upon completion of construction.

C. Acquisition Plan (describe proposed contracting methodology):

Bids were solicited via a request for proposal in Commerce Business Daily. Competition was based on price as well as technical ability of offerers. The contract was awarded on a firm fixed price basis for a base construction package with alternates for subsequent phases to complete construction.

NASM is currently bidding the facilities management and security contracts.

PART III: CURRENT STATUS (describe performance against milestones)

The project construction is over 50% complete. The Main Hangar truss system is complete and the roof should be complete the first week of August. The Central Utility Plant is closed in with chillers, boilers, switch-gear and fire suppression equipment in place. Piping and wiring for these system are being installed. Equipment testing should begin in October. The exterior panels on the theater are over 60 % complete, glass and Kal-wall are being installed on the fuselage. Exterior tile installation is also in progress. Parking lot and site access roads are progressing on schedule and the Route 28 interchange construction began in July.

NASM has met all construction milestones and is progressing toward beneficial occupancy in the winter of 2003. The first artifacts are ready to be moved. The exhibit kiosk, railing and barriers contract was issued in August 2002. The facilities' management outsourcing contract will be let in September 2002, with the security outsourcing contract shortly behind that in October 2002.

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PART I. A. SUMMARY OF PROJECT INFORMATION				
Location	Washington, DC, the National Mall			
Program Unit Sponsor	National Museum of the American Indian			
Account Title	Construction			
Account Identification Code	XXXXXX			
Name of Project	Mall Museum			
Project Number	922307			
Project Partners				
This Project Is:	New Construction:	XXX	Revitalization of Existing Facility:	
Project/Useful segment is funded:	Incrementally:	XXX	Fully:	
Did the Capital Planning Board approve the project?			Date:	1989
Did the Capital Planning Board approve the current funding proposal?			Date:	Jan 2002
Did the Smithsonian Board of Regents approve the project?			Date:	1989
Did Congress authorize the project?			Date:	Nov 1989

B. PROJECT BASELINE		
Initial Baseline Date: January 2001	Date of Baseline Change: April 2001	Indicate Here if Preliminary:
<p>1. Project Scope (specific description of work effort, including square footage involved, historical significance of existing building, project phases if applicable, highlight changes from original baseline):</p> <p>The National Museum of the American Indian Mall Museum, a 251,000 net square foot building, consists of five stories above grade, with two mechanical mezzanine levels, and a basement. It houses a five-story, domed atrium, several large exhibit galleries, a 300-seat theater, a native-foods café, museum shops, and office and support areas. The 4.3-acre site contains several outdoor gathering and performance areas, water features, and a native habitat landscape.</p> <p>The curvilinear design was inspired by natural rock strata formations, eroded by wind and water. The building stone is Kasota, a buff-colored, dolomite limestone quarried in Minnesota, which is complemented by warm gray American Mist granite paving. The stone continues from the exterior to the interior to reinforce the Native American design principle of connection to the landscape and natural world. Other natural building materials, including wood and metal, are dominant throughout the interior.</p> <p>In order to accommodate the phased availability of funds, the construction contract is broken down into the following discrete packages:</p> <p><u>Base Bid</u>: concrete foundation, floor slabs, columns, and roof slab</p> <p><u>Option A</u>: watertight perimeter enclosure (exterior walls, glazing, roof) and installation of most interior mechanical systems</p> <p><u>Option B</u>: fit-out of the basement, ground and second floors and exterior site work and landscaping</p> <p><u>Option C</u>: completion of the building by finishing all work on floors three, four and five</p>		
2. Detail of Overall Project Schedule		Month & Year
Planning/Design Start Date:		November 1991
Design Completion Date:		September 2000
Construction Start Date:		September 1999
Construction Completion Date:		May 2004
Building Occupancy Date:		June 2004
Public Opening Date (if applicable):		September 2004

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3. Detail of Total Project Cost Estimate			Amount in \$Millions
CAPITAL COSTS			
Planning/Design			23.3
Revitalization/Construction			147.7
Contingency	Percentage: 8% of 147.7M		11.8
Construction Management	Percentage: 10% of 147.7M		14.9
Building Commissioning	Percentage: 1% of 158M		1.6
TOTAL CAPITAL COSTS:			199.3
Non-capital Costs (fundraising, relocation, one-time occupancy costs, exhibits installation)			20.0
TOTAL PROJECT COST			219.3
Explanation of Basis/methodology for Cost Estimates (indicate stage of design or other assumptions used)			
Design complete, bids for all phases received.			

C. SUMMARY OF FUNDING FOR PROJECT STAGES									
\$ Millions (1 decimal place)	Prior	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	Outyears	Total
INITIAL PROJECT BASELINE:	FY: 2002	Request to Congress						Date: March 2001	
FEDERAL Capital Costs	103.3	10.0							113.3
TRUST Capital Costs	69.7	2.7							72.4
TOTAL CAPITAL COSTS	173.0	12.7							185.7
Non-Capital Costs			20.0						20.0
TOTAL PROJECT FUNDS:	173.0	12.7	20.0						205.7
PRIOR BUDGET REQUEST	FY: 2003	Request to Congress						Date: Feb 2002	
FEDERAL Capital Costs	103.3	10.0							113.3
TRUST Capital Costs	69.7	16.3							86.0
TOTAL CAPITAL COSTS	173.0	26.3							199.3
Non-Capital Costs			20.0						20.0
TOTAL PROJECT FUNDS:	173.0	26.3	20.0						219.3
CURRENT BUDGET REQUEST	FY: 2004	Request to OMB						Date: Sept 2002	
FEDERAL Capital Costs	103.3	10.0							113.3
TRUST Capital Costs	69.7	16.3							86.0
TOTAL CAPITAL COSTS	173.0	26.3							199.3
Non-Capital Costs			20.0						20.0
TOTAL PROJECT FUNDS:	173.0	26.3	20.0						219.3
CHANGES (Prior Request to Current Request)									
FEDERAL Capital Costs	0	0	0	0	0	0	0	0	0
TRUST Capital Costs	0	0	0	0	0	0	0	0	0
TOTAL CAPITAL COSTS	0	0	0	0	0	0	0	0	0
Non-Capital Costs	0	0	0	0	0	0	0	0	0
TOTAL PROJECT FUNDS:	0	0	0	0	0	0	0	0	0
Explanation of Baseline Change (detail of factors that affected changed scope, schedule and/or costs):									
The change from initial baseline reflects actual bids received.									

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D. OPERATING COST PROJECTIONS			
ESTIMATED ANNUAL OPERATING COST	Date of First Full Year Occupancy (FY): 2005	FTE	Amount (\$M)
FY 2006 : Programmatic Costs (Museum Federal and Trust costs)		155	18.2
Facilities Costs (Maintenance, Operations Security & Support, incl. Facilities Management):		100	6.6
Central SI Support Costs (Overhead):		0	0
TOTAL ANNUAL OPERATING COST:		255	24.8
Explanation of basis/methodology for cost estimates (assumptions used, notes on unit preparing estimates):			
Programmatic cost estimates prepared by NMAI staff; Facilities & SI Support cost estimates prepared by OFEO, based on design drawings of building. Central SI Support costs do not include staff hired before initial operations estimates shown.			

E. SUMMARY OF OPERATIONS FUNDING																
\$ Millions (1 decimal place)	Prior		FY 03		FY 04		FY 05		FY 06		FY 07		FY 08		Outyears	
	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$
INITIAL OPERATIONS ESTIMATE:	FY: 2002				Request to OMB								Date: Nov 2000			
TOTAL FEDERAL OPERATING COST:	101	19.3	222	24.6	254	20.1	254	18.2	254	18.2	254	18.2	254	18.2	254	18.2
TOTAL TRUST OPERATING COST:	Trust data were not collected.															
TOTAL ANNUAL OPERATING COST:	101	19.3	222	24.6	254	20.1	254	18.2	254	18.2	254	18.2	254	18.2	254	18.2
PRIOR BUDGET REQUEST	FY: 2003				Request to OMB								Date: Sept 2001			
TOTAL FEDERAL OPERATING COST:	74	12.4	116	23.8	252	22.3	252	19.2	252	19.3	252	19.3	252	19.3	252	19.3
TOTAL TRUST OPERATING COST:	4	3.5	4	3.3	4	3.4	4	3.1	4	3.1	4	3.1	4	3.1	4	3.1
TOTAL ANNUAL OPERATING COST:	78	15.9	131	27.1	256	25.7	256	22.3	256	22.4	256	22.4	256	22.4	256	22.4
CURRENT BUDGET REQUEST	FY: 2004				Request to OMB								Date: Sept 2002			
TOTAL FEDERAL OPERATING COST:	74	13.1	101	17.8	199	27.6	252	21.8	251	21.7	251	21.7	251	21.7	251	21.7
TOTAL TRUST OPERATING COST:	4	3.5	4	3.3	4	3.4	4	3.1	4	3.1	4	3.1	4	3.1	4	3.1
TOTAL ANNUAL OPERATING COST:	78	16.6	105	21.1	203	31.0	256	24.9	255	24.8	255	24.8	255	24.8	255	24.8
CHANGES (Prior Request to Current Request)																
TOTAL FEDERAL OPERATING COST:	-	+0.7	-15	-6.0	-53	+5.3	-	+2.6	-1	+2.4	-1	+2.4	-1	+2.4	-1	+2.4
TOTAL TRUST OPERATING COST:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL ANNUAL OPERATING COST:	-	+0.7	-15	-6.0	-53	+5.3	+1	+2.6	-1	+2.4	-1	+2.4	-1	+2.4	-1	+2.4
Explanation of Change:																
In FY 2003, the Museum deferred initial purchases of furnishings and equipment, 14 positions for collections management and registration, custodial operations, and general administration. In Facilities, 4 HVAC mechanics and 1 occupational safety specialist were deferred.																
In FY 2004, the Museum deferred positions in exhibits, education and collections management since the Museum will not be fully open until the very end of FY 2004. In Facilities, the hiring of 51 security staff, and operations and maintenance staff will be phased during FY 2004. The increases in outyear requirements reflect additional needs identified by the Museum for full functioning of the Museum.																

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PART II: JUSTIFICATION AND OTHER INFORMATION

A. Justification (describe why the project is needed, including specific dates required, programs supported, and alternatives analysis):

Public Law 101-185 established the National Museum of the American Indian (NMAI) in 1989 as a museum within the Smithsonian Institution. The legislation provided for the transfer from New York City of the extensive and extraordinary collection of the Heye Foundation's Museum of the American Indian. It also authorized the construction of three facilities which would together form the NMAI: an exhibition facility at the Alexander Hamilton US Custom House in New York City (the NMAI George Gustav Heye Center); a public exhibition facility on the National Mall in Washington, DC; and a storage and resource facility (the NMAI Cultural Resources Center) at the Smithsonian's Suitland Collections Center in Maryland. As the NMAI's third and final facility, this building will be a centerpiece for public programs—that is, the primary venue for exhibitions, performance, conferences, and other programs serving the general public. The planning and design of the NMAI facilities were and continue to be conceived of and executed with the direct involvement of Native Americans representing a wide cross section of Native peoples of the Western Hemisphere.

B. Project/Program Management (indicate key staff/organization responsible for this project):

Project Executive (if applicable):	Sheryl Kolasinski, Director, Office of Project Management, OFEO (Acting)
Project Manager:	Debra Nauta-Rodriguez, Office of Project Management, OFEO
Design Manager:	Debra Nauta-Rodriguez, Office of Project Management, OFEO
Construction Manager (Res. Engineer):	Paul Brown, Office of Engineering, Design and Construction, OFEO
Program Manager/Liaison & Unit	Richard West, Director, NMAI

Other Management Plans (Executive/Steering Committees, etc.)

Oversight Committee includes senior SI, NMAI, OFEO, and Office of Contracting (OCon) management. It meets as needed to provide overall review of project progress and make financial and policy decisions.

Executive Construction Project Committee includes project staff as well as working level staff from the Museum, OFEO, OCon, and others as needed. It meets monthly to review construction progress, resolve problems, and plan for building occupation and operation upon completion of construction.

C. Acquisition Plan (describe proposed contracting methodology):

Bids were solicited via a request for proposal in Commerce Business Daily. Competition was based on price as well as technical ability of offerers. The contract was awarded on a firm fixed price basis for a base construction package with three options for subsequent phases to complete construction.

PART III: CURRENT STATUS (describe performance against milestones)

Excavation, sheeting, shoring, and dewatering were completed under the Site Preparation Contract in January 2001. The building package was divided into a base bid with several options, devised to follow a critical path construction schedule and anticipated funding stream. The base bid is a foundations and structure package; Option A is the core and shell; Options B and Option C comprise the interior fit-out, furnishings and equipment, and the completion of the landscaping and site work. A construction contract was awarded to Clark/TMR, A Joint Venture, on June 20, 2001. The base bid and the stone portions of Options A & B were exercised in the initial contract phase, and the balance of Options A and B were awarded in February 2002. Option C should be awarded in the fall of 2002 to complete build-out of the interiors. Construction is essentially on schedule with completion projected for spring of 2004. The National Museum of the American Indian will open in the fall of 2004.

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PART I. A. SUMMARY OF PROJECT INFORMATION				
Location	Washington, DC			
Program Unit Sponsor	National Zoological Park			
Account Title	Facilities Capital, Revitalization			
Account Identification Code				
Name of Project	Asia Trail, Phases II & III: New Elephant Yards and Holding Space			
Project Number				
Project Partners				
This Project Is:	New Construction:	XXX	Revitalization of Existing Facility:	
Project/Useful segment is funded:	Incrementally:	XXX	Fully:	
Did the Capital Planning Board approve the project?			Date:	June 2001
Did the Capital Planning Board approve the current funding proposal?			Date:	May 2002
Did the Smithsonian Board of Regents approve the project?			Date:	Sept. 2001
Did Congress authorize the project? (If not required, indicate NA)			Date:	NA

B. PROJECT BASELINE		
Initial Baseline Date:	Date of Baseline Change:	Indicate Here if Preliminary: XXXX
<p>1. Project Scope (specific description of work effort, including square footage involved, historical significance of existing building, project phases if applicable, highlight changes from original baseline):</p> <p>The Zoo is more than 110 years old and its age and popularity have taken a visible toll. The Zoo's physical environment is deteriorating. Many of our largest creatures—lions, tigers, bears, elephants, giraffes, hippos, rhinos—are housed in our oldest areas. Yet families come to the Zoo primarily to see these species, often called "charismatic mega-vertebrates." The sloth bear exhibit was built in the late 1890s, for example, and the Elephant House in the 1930s. Asia Trail, Phases II & III will provide a new facility for a herd of up to ten adult elephants with adequate year round housing, new elephant yards, safe containment, re-graded and landscaped edges. All this will be connected via an elephant trek that will provide the flexibility to shift from yard to yard and to exercise the animals as well as offering sensory stimulus outside their daily routine. A large pool in one yard will allow an adult elephant to completely submerge, behavior capabilities not now available. Accessible areas surrounding the elephant enclosures will permit the public to observe the elephants and keeper demonstrations with new and exciting interpretive programs.</p> <p>Phase II is the construction of the yards. Phase III will provide new interior holding space for the elephants. The project will be designed and constructed in increments. The preliminary scope, estimate and schedule for each segment will be refined and a baseline established once 35% of the design has been completed.</p>		
<p>2. Detail of Overall Project Schedule</p>		<p>Month & Year</p>
Planning/Design Start Date:		October 2002
Design Completion Date:		Phase II: Spring 2004; Phase III: TBD
Construction Start Date:		Phase II: Fall 2004
Construction Completion Date:		Phase II: May 2006; Phase III: TBD
Building Occupancy Date:		Phase II: June 2006; Phase III: TBD
Public Opening Date (if applicable):		Phase II: Sept. 2006; Phase III: TBD

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3. Detail of Total Project Cost Estimate			Amount in \$Millions
CAPITAL COSTS			
Planning/Design			13.5
Revitalization/Construction			50.0
Contingency	Percentage: 12.5% of 50		6.25
Construction Management	Percentage: 6.5% of 50		3.25
Building Commissioning	Percentage: 1% of 50		.5
TOTAL CAPITAL COSTS:			73.5
Non-capital Costs (fundraising, relocation, one-time occupancy costs, exhibits installation)			8.5
TOTAL PROJECT COST			82.0
Explanation of Basis/methodology for Cost Estimates (indicate stage of design or other assumptions used)			
Estimated based on experience from recent Zoo projects. The estimate for design is 22.5%, based on the high cost of landscape architecture services, which will be required for a large portion of the project.			

C. SUMMARY OF FUNDING FOR PROJECT STAGES									
\$ Millions (1 decimal place)	Prior	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	Outyears	Total
INITIAL PROJECT BASELINE: PRE	FY: 2003	Request to OMB						Date: Sept 2001	
FEDERAL Capital Costs		1.5	2.0	20.0	38.5				62.0
TRUST Capital Costs									
TOTAL CAPITAL COSTS		1.5	2.0	20.0	38.5				62.0
Non-Capital Costs									
TOTAL PROJECT FUNDS:		1.5	2.0	20.0	38.5				62.0
PRIOR BUDGET REQUEST	FY: 2003	Request to Congress						Date: Feb 2002	
FEDERAL Capital Costs		2.5	11.0	20.0	28.5				62.0
TRUST Capital Costs									
TOTAL CAPITAL COSTS		2.5	11.0	20.0	28.5				62.0
Non-Capital Costs									
TOTAL PROJECT FUNDS:		2.5	11.0	20.0	28.5				62.0
CURRENT BUDGET REQUEST	FY: 2004	Request to OMB						Date: Sept 2002	
FEDERAL Capital Costs		2.5	9.0	32.0	30.0				73.5
TRUST Capital Costs									
TOTAL CAPITAL COSTS		2.5	9.0	32.0	30.0				73.5
Non-Capital Costs			.5	8.0					8.5
TOTAL PROJECT FUNDS:		2.5	9.5	40.0	30.0				82.0
CHANGES (Prior Request to Current Request)									
FEDERAL Capital Costs		0	-2.0	+12.0	+1.5				+11.5
TRUST Capital Costs									
TOTAL CAPITAL COSTS		0	-2.0	+12.0	+1.5				+11.5
TRUST Non-Capital Costs			+5	+8.0					+8.5
TOTAL PROJECT FUNDS:		0	-1.5	+20.0	+1.5				+20.0
Explanation of Baseline Change (detail of factors that affected changed scope, schedule and/or costs):									
FY 2004 estimate was lowered with decision to phase Asia II work; total project costs were increased after additional planning to refine the scope, and costs were distributed between FY 2005 and 2006 based on the expected volume of work to be completed each year. Non-capital costs were not previously estimated. The estimates are still in the preliminary stage until completion of 35% design.									

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D. OPERATING COST PROJECTIONS			
ESTIMATED ANNUAL OPERATING COST	Date of First Full Year Occupancy (FY):	FTE	Amount (\$M)
Programmatic Costs (Federal and Trust)		7	.5
Facilities Costs (Operations & Maintenance, Security, Safety):		2	.2
Central SI Support Costs (Overhead):		0	0
TOTAL ANNUAL OPERATING COST:		9	.7
Explanation of basis/methodology for cost estimates (assumptions used, notes on unit preparing estimates):			
This is a very preliminary estimate based on current costs for similar space at the Zoo.			

E. SUMMARY OF OPERATIONS FUNDING																
\$ Millions (1 decimal place)	Prior		FY 03		FY 04		FY 05		FY 06		FY 07		FY 08		Outyears	
	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$
INITIAL OPERATIONS ESTIMATE:	FY: 2004				Request to OMB								Date: Sept 2002			
TOTAL FEDERAL OPERATING COST:									9	.7	9	.7	10	.8	10	.8
TOTAL TRUST OPERATING COST:									0	0	0	0	0	0	0	0
TOTAL ANNUAL OPERATING COST:									9	.7	9	.7	10	.8	10	.8
PRIOR BUDGET REQUEST	FY: 2003				Request to OMB or Congress:								Date:			
TOTAL FEDERAL OPERATING COST:																
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:																
CURRENT BUDGET REQUEST	FY: 2004				Request OMB								Date: Sept 2002			
TOTAL FEDERAL OPERATING COST:									9	.7	9	.7	10	.8	10	.8
TOTAL TRUST OPERATING COST:									0	0	0	0	0	0	0	0
TOTAL ANNUAL OPERATING COST:									9	.7	9	.7	10	.8	10	.8
CHANGES (Prior Request to Current Request)																
TOTAL FEDERAL OPERATING COST:									+9	+7	+9	+7	+10	+8	+10	+8
TOTAL TRUST OPERATING COST:									0	0	0	0	0	0	0	0
TOTAL ANNUAL OPERATING COST:									+9	+7	+9	+7	+10	+8	+10	+8
Explanation of Change:																
This is the initial, and very preliminary, estimate of operating costs.																

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PART II: JUSTIFICATION AND OTHER INFORMATION

A. Justification (describe why the project is needed, including specific dates required, programs supported, and alternatives analysis):

Asia II, new elephant yards, is the first phase of the Asia II and III project – new elephant yards and elephant holding. By providing the yards in Phase I, the elephants will have access to larger and more complex yards that will support a small herd in the social environment they require. With the birth of the male elephant this year, NZP is moving towards its goal of housing and exhibiting elephants as recommended by current zoological standards. With the introduction of a male elephant into our collection the housing requirements have changed dramatically. More space, stronger housing and the ability to separate the keeper and the elephant at all times is now required. The current building and yards do not meet any of these requirements. Additionally, the building's mechanical and electrical systems are more than 50 years old and break down frequently. It is not possible to maintain acceptable water quality due the limitations of the pools and plumbing systems. The roof and skylights leak causing deterioration and in turn unsafe conditions for the public, staff and the animals.

B. Project/Program Management (indicate key staff/organization responsible for this project):

Project Executive (if applicable):	Michelle Kayon, Acting Associate Director, Office of Facilities and Construction, NZP
Project Manager:	TBD
Design Manager:	Richard Hider, Exhibits and Outreach
Construction Manager (Res. Engineer):	TBD
Program Manager/Liaison & Unit	Lynn Dolnick, Associate Director, Exhibits and Outreach

Other Management Plans (Executive/Steering Committees, etc.)

Project committee includes NZP senior staff from Animal Programs, Facilities Management and Construction, Exhibits and Outreach, Friends of the National Zoo, and Office of the Director.

C. Acquisition Plan (describe proposed contracting methodology):

Design will be negotiated with A/E firm already pre-qualified by Smithsonian Institution task order process. Construction will be a firm fixed price contract with selection panel.

PART III: CURRENT STATUS (describe performance against milestones)

Animal requirements have been developed in draft format. Scope of work for design is 50% complete. Discussions are ongoing with Office of Contracting to determine best method to provide the complex and unique requirements to complete design and construction.

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PART I. A. SUMMARY OF PROJECT INFORMATION				
Location	Washington, DC, the National Mall			
Program Unit Sponsor	Office of Protection Services			
Account Title	Facilities Capital, Revitalization			
Account Identification Code				
Name of Project	Anti-Terrorism Modifications			
Project Number				
Project Partners				
This Project Is:	New Construction:	XXX	Revitalization of Existing Facility:	XXX
Project/Useful segment is funded:	Incrementally:	XXX	Fully:	
Did the Capital Planning Board approve the project?			Date:	Oct 2001
Did the Capital Planning Board approve the current funding proposal?			Date:	May 2002
Did the Smithsonian Board of Regents approve the project?			Date:	Jan 2002
Did Congress authorize the project? (If not required, indicate NA)			Date:	NA

B. PROJECT BASELINE		
Initial Baseline Date:	Date of Baseline Change:	Indicate Here if Preliminary: XXXX
<p>1. Project Scope (specific description of work effort, including square footage involved, historical significance of existing building, project phases if applicable, highlight changes from original baseline):</p> <p>The project includes the following components at all Mall area buildings:</p> <p><u>Electronic Access Control</u>: The installation of Electronic Access Control (card readers) at all public/staff separation points throughout SI facilities to restrict the public's ability to gain access to sensitive and critical areas.</p> <p><u>National Museum of Natural History Temporary Screening Structures</u>: As the entrances of the National Museum of Natural History cannot currently support the installation of electronic screening equipment, it is necessary to renovate the entrances to accommodate the equipment. This will be accomplished as part of the project to create an accessible entrance to the Museum from the Mall. Until that project can be completed, it will be necessary to install temporary structures near the Natural History entrances to protect visitors, staff and electronic screening equipment from the elements.</p> <p><u>Perimeter Camera Systems</u>: Provide surveillance of building exteriors. Full-time recording by these cameras will provide invaluable investigative information.</p> <p><u>Permanent Physical Barriers, Pop-up Barriers and Guard Booths</u>: Provide reasonable standoff distance from SI facilities to ensure that vehicles/trucks carrying explosive devices cannot drive up to or immediately adjacent to building exteriors.</p>		
2. Detail of Overall Project Schedule		Month & Year
Planning/Design Start Date:		August 2002
Design Completion Date:		July 2003
Construction Start Date:		August 2003
Construction Completion Date:		August 2005
Building Occupancy Date:		NA
Public Opening Date (if applicable):		NA

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3. Detail of Total Project Cost Estimate			Amount in \$Millions
CAPITAL COSTS			
Planning/Design			2.1
Revitalization/Construction			41.2
Contingency	Percentage: 10% of 41.2		4.1
Construction Management	Percentage: 12% of 41.2		5.0
Building Commissioning	Percentage:		N/A
TOTAL CAPITAL COSTS:			52.4
Non-capital Costs (fundraising, relocation, one-time occupancy costs, exhibits installation)			0
TOTAL PROJECT COST			52.4
Explanation of Basis/methodology for Cost Estimates (indicate stage of design or other assumptions used)			
Preliminary estimate based on experience with similar work in Smithsonian buildings and in other government agencies in Washington DC.			

C. SUMMARY OF FUNDING FOR PROJECT STAGES									
\$ Millions (1 decimal place)	Prior	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	Outyears	Total
INITIAL PROJECT BASELINE:	FY: 2003	Request to Congress						Date: Feb 2002	
FEDERAL Capital Costs	2.1	10.8	10.1	29.4					52.4
TRUST Capital Costs									
TOTAL CAPITAL COSTS	2.1	10.8	10.1	29.4					52.4
Non-Capital Costs									
TOTAL PROJECT FUNDS:	2.1	10.8	10.1	29.4					52.4
PRIOR BUDGET REQUEST	FY: 2003	Request to Congress						Date: Feb 2002	
FEDERAL Capital Costs	2.1	10.8	10.1	29.4					52.4
TRUST Capital Costs									
TOTAL CAPITAL COSTS	2.1	10.8	10.1	29.4					52.4
Non-Capital Costs									
TOTAL PROJECT FUNDS:	2.1	10.8	10.1	29.4					52.4
CURRENT BUDGET REQUEST	FY: 2004	Request to OMB						Date: Sept 2002	
FEDERAL Capital Costs	2.1	10.8	10.1	29.4					52.4
TRUST Capital Costs									
TOTAL CAPITAL COSTS	2.1	10.8	10.1	29.4					52.4
Non-Capital Costs									
TOTAL PROJECT FUNDS:	2.1	10.8	10.1	29.4					52.4
CHANGES (Prior Request to Current Request)									
FEDERAL Capital Costs	0	0	0	0	0	0	0	0	0
TRUST Capital Costs									
TOTAL CAPITAL COSTS	0	0	0	0	0	0	0	0	0
Non-Capital Costs									
TOTAL PROJECT FUNDS:	0	0	0	0	0	0	0	0	0
Explanation of Baseline Change (detail of factors that affected changed scope, schedule and/or costs):									
This is the first time this project has appeared in the Facilities Capital program.									

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D. OPERATING COST PROJECTIONS			
ESTIMATED ANNUAL OPERATING COST	Date of First Full Year Occupancy (FY):	FTE	Amount (\$M)
Programmatic Costs (Federal and Trust)			
Facilities Costs (Operations & Maintenance, Security, Safety):			
Central SI Support Costs (Overhead):			
TOTAL ANNUAL OPERATING COST:		0	0
Explanation of basis/methodology for cost estimates (assumptions used, notes on unit preparing estimates):			
No operating costs are related to these passive systems.			

E. SUMMARY OF OPERATIONS FUNDING																
\$ Millions (1 decimal place)	Prior		FY 03		FY 04		FY 05		FY 06		FY 07		FY 08		Outyears	
	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$		
INITIAL OPERATIONS ESTIMATE:	FY:		Request to OMB or Congress:										Date:			
TOTAL FEDERAL OPERATING COST:																
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:																
PRIOR BUDGET REQUEST	FY:		Request to OMB or Congress:										Date:			
TOTAL FEDERAL OPERATING COST:																
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:																
CURRENT BUDGET REQUEST	FY:		Request to OMB or Congress:										Date:			
TOTAL FEDERAL OPERATING COST:																
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:																
CHANGES (Prior Request to Current Request)																
TOTAL FEDERAL OPERATING COST:																
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:																
Explanation of Change:																

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PART II: JUSTIFICATION AND OTHER INFORMATION

A. Justification (describe why the project is needed, including specific dates required, programs supported, and alternatives analysis):

All risk assessments conducted at the Smithsonian since September 11, 2001 have recommended new security measures for all Smithsonian museums and facilities. The popular recognition of the Smithsonian name, the American icons contained in its facilities, and the high level of public access and visitation distinguish the Smithsonian facilities from other government office buildings. If the requested funding is not provided for the outlined initiatives there is an increased likelihood for a possible terrorist attack.

B. Project/Program Management (indicate key staff/organization responsible for this project):

Project Executive (if applicable):	Douglas Hall, Office of Protection Services, OFEO
Project Manager:	Multiple
Design Manager:	Multiple
Construction Manager (Res. Engineer):	Multiple
Program Manager/Liaison & Unit	Douglas Hall, Office of Protection Services, OFEO
Other Management Plans (Executive/Steering Committees, etc.)	

The SI Anti-Terrorism Security Improvement Program/Project is sponsored and overseen by Senior Office of Protection Services (OPS) staff. The project management of the program will be accomplished through a partnership of OFEO/OPS and OFEO/Office of Project Management staff. Design and construction management of individual projects will be accomplished through a partnership of OFEO/OPS and OFEO/Office of Engineering, Design and Construction staff.

C. Acquisition Plan (describe proposed contracting methodology):

Acquisition of new design and construction services will be accomplished through existing relationships such as GSA (Blanket Purchase Agreements) and SI Indefinite Delivery Indefinite Quantity (IDIQ) contracts. Some other elements will be accomplished through modifications to existing design and construction projects.

PART III: CURRENT STATUS (describe performance against milestones)

To date OPS has completed risk assessments of all major SI facilities; completed blast assessments of NMNH, NMAH, NASM and HMSG; installed temporary barriers around NMNH and NMAH; implemented electronic screening of all visitors at NASM; and initiated design of permanent barrier systems, pop-up barriers, guard booths, perimeter CCTV and Emergency Voice (or P/A) systems.

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PART I. A. SUMMARY OF PROJECT INFORMATION				
Location	Suitland, Maryland			
Program Unit Sponsor	National Museum of Natural History			
Account Title	Facilities Capital, Construction			
Account Identification Code				
Name of Project	MSC Pod 5, Wet Chemical Storage and Laboratories			
Project Number	0230101			
Project Partners				
This Project Is:	New Construction:	XXX	Revitalization of Existing Facility:	
Project/Useful segment is funded:	Incrementally:	XXX	Fully:	
Did the Capital Planning Board approve the project?			Date:	January 2002
Did the Capital Planning Board approve the current funding proposal?			Date:	May 2002
Did the Smithsonian Board of Regents approve the project? (If not required, indicate NA)			Date:	September 2001
Did Congress authorize the project? (If not required, indicate NA)			Date:	In progress

B. PROJECT BASELINE		
Initial Baseline Date:	Date of Baseline Change:	Indicate Here if Preliminary:XXXX
<p>The preliminary scope of the project includes the following elements:</p> <ul style="list-style-type: none"> 120,000 gross square foot addition to Museum Support Center (MSC) for storage of animal and botanical specimens preserved in alcohol now located in National Museum of Natural History on the Mall and in MSC Pod 3. The new pod will contain 3 levels for storage. The height will be determined based upon the requirement to provide appropriate space above and around the containers to provide adequate ventilation. The design of Pod 5 will accommodate existing shelving systems utilized by the Museum, as well as new shelving and compactor systems that are suitable for use with this kind of collection. Purchase of new equipment and relocation of existing shelving is included in the project. Laboratory/research space of approximately 42,000 gross square feet will provide space for staff working with the collections in Pod 5. The utility and access "street" will be extended from the existing building to connect Pod 5 to the rest of the building, as well as to provide a buffer between the storage pod and offices and laboratories. A loading dock will provide direct access to the new storage space. <p>The new pod is in accordance with the approved master plan for the Suitland campus. The estimated \$28 million cost to construct and equip the building will be further refined and a baseline (scope, schedule and budget) established once the building has been designed to the 35% stage.</p>		
2. Detail of Overall Project Schedule		Month & Year
Planning/Design Start Date:		October, 2002
Design Completion Date:		January, 2004
Construction Start Date:		June, 2004
Construction Completion Date:		January, 2006
Building Occupancy Date:		Beginning February 2006
Public Opening Date (if applicable):		N/A

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3. Detail of Total Project Cost Estimate			Amount in \$Millions
CAPITAL COSTS			
Planning/Design			2.0
Revitalization/Construction			23.5
Contingency	Percentage: 8% of 23.5		2.0
Construction Management	Percentage: 10% of 23.5		2.3
Building Commissioning	Percentage: 1% of 27.8		0.2
TOTAL CAPITAL COSTS:			30.0
Non-capital Costs (fundraising, relocation, one-time occupancy costs, exhibits installation)			0
TOTAL PROJECT COST			30.0
Explanation of Basis/methodology for Cost Estimates (indicate stage of design or other assumptions used)			
Preliminary estimate based on approximate per square foot cost of \$150 for construction and equipping of similar spaces.			

C. SUMMARY OF FUNDING FOR PROJECT STAGES									
\$ Millions (1 decimal place)	Prior	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	Outyears	Total
INITIAL PROJECT BASELINE:	FY: 2003	Request to OMB						Date: Sept 2001	
FEDERAL Capital Costs	-0-	-0-	2.0	23.5	2.8				28.3
TRUST Capital Costs									
TOTAL CAPITAL COSTS									
Non-Capital Costs									
TOTAL PROJECT FUNDS:	-0-	-0-	2.0	23.5	2.8				28.3
PRIOR BUDGET REQUEST	FY: 2003	Request to Congress						Date: Feb 2002	
FEDERAL Capital Costs			2.0	12.0	13.0	2.5			29.5
TRUST Capital Costs									
TOTAL CAPITAL COSTS									
Non-Capital Costs									
TOTAL PROJECT FUNDS:			2.0	12.0	13.0	2.5			29.5
CURRENT BUDGET REQUEST	FY: 2004	Request to OMB						Date: Sept 2002	
FEDERAL Capital Costs			2.0	22.0	6.0				30.0
TRUST Capital Costs									
TOTAL CAPITAL COSTS									
Non-Capital Costs									
TOTAL PROJECT FUNDS:			2.0	22.0	6.0				30.0
CHANGES (Prior Request to Current Request)									
FEDERAL Capital Costs			0	+10.0	-7.0	-2.5			+1.5
TRUST Capital Costs									
TOTAL CAPITAL COSTS									
Non-Capital Costs									
TOTAL PROJECT FUNDS:			0	+10.0	-7.0	-2.5			+1.5
Explanation of Baseline Change (detail of factors that affected changed scope, schedule and/or costs):									
The Institution requests full funding of expected construction cost in FY 2004, with following funding in FY 2005 to purchase and install storage equipment. The full cost of the project was recalculated and rounded up to \$30 million once the preliminary scope was refined.									

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D. OPERATING COST PROJECTIONS			
ESTIMATED ANNUAL OPERATING COST	Date of First Full Year Occupancy (FY): 2006	FTE	Amount (\$M)
Programmatic Costs (Museum Federal and Trust costs)		0	0
Facilities Costs (Maintenance, Operations Security & Support):		3	.6
Central SI Support Costs (Overhead):		0	0
TOTAL ANNUAL OPERATING COST:		3	.6
Explanation of basis/methodology for cost estimates (assumptions used, notes on unit preparing estimates):			
Estimated facilities costs are based on square footage of new space and current operating costs at the Museum Support Center.			

E. SUMMARY OF OPERATIONS FUNDING																
\$ Millions (1 decimal place)	Prior		FY 02		FY 03		FY 04		FY 05		FY 06		FY 07		Outyears	
	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$
INITIAL OPERATIONS ESTIMATE:	FY: 2004				Request to OMB:								Date: Sept 2002			
TOTAL FEDERAL OPERATING COST:										.2	3	.8	3	.6	3	.6
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:										.2	3	.8	3	.6	3	.6
PRIOR BUDGET REQUEST	FY:				Request to OMB or Congress:								Date:			
TOTAL FEDERAL OPERATING COST:																
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:																
CURRENT BUDGET REQUEST	FY: 2004				Request to OMB:								Date: Sept 2002			
TOTAL FEDERAL OPERATING COST:										.2	3	.8	3	.6	3	.6
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:										.2	3	.8	3	.6	3	.6
CHANGES (Prior Request to Current Request)																
TOTAL FEDERAL OPERATING COST:										+2	+3	+8	+3	+6	+3	+6
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:										+2	+3	+8	+3	+6	+3	+6

Explanation of Change:

This is the initial estimate of operating costs. As design of the building proceeds, further analysis of operation requirements will result in a refined estimate.

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PART II: JUSTIFICATION AND OTHER INFORMATION

A. Justification (describe why the project is needed, including specific dates required, programs supported, and alternatives analysis):

The design and construction of Pod 5 is the Smithsonian's highest priority safety and security project. The Smithsonian has the world's largest collection of animal and botanical specimens preserved in alcohol. This irreplaceable collection is at risk of total loss because it is stored in space at the NMNH building on the Mall that does not meet the National Fire Codes. In addition, the events of September 11 have put a higher level of emphasis and increased necessity on proceeding with this project.

Renovating the existing space in the Mall Museum to become code compliant can only be achieved through extraordinarily disruptive and costly means. The resultant space would only house a fraction of the collections now located on the Mall due to the 500 square foot maximum for each storage room called for in the National Fire Codes. The safest solution is the construction of a fifth pod at the Museum Support Center in Suitland, where security inside the perimeter fencing provides the lowest risk. The fifth pod would effectively isolate the alcohol collections from vulnerable, less volatile collections in nearby existing pods.

B. Project/Program Management (indicate key staff/organization responsible for this project):

Project Executive (if applicable):	To Be Determined
Project Manager:	L. D. Heacock, Office of Project Management, OFEO
Design Manager:	Diane Crisen, Office of Engineering, Design and Construction, OFEO
Construction Manager (Res. Engineer):	To Be Determined
Program Manager/Liaison & Unit	Jerome Conlon, NMNH
Other Management Plans (Executive/Steering Committees, etc.)	

To be determined.

C. Acquisition Plan (describe proposed contracting methodology):

Bids for construction will be solicited via a request for proposal in the Commerce Business Daily. Competition will be based on best value, technical ability of offerers and price. The contract will be awarded on a firm fixed price for the base construction with options for alternates. Alternates will be determined during the development of the construction documents.

PART III: CURRENT STATUS (describe performance against milestones)

The facility planning phase (PDRI) for the development of the A/E Consultant's Scope of Work had been completed and Smithsonian is actively negotiating with an architect to finalize the scope. The estimated cost of the A/E fee is \$2,000,000. It is anticipated that all preliminary work will be completed so that the award for the design can be made as soon as funding becomes available. The preliminary milestone schedule is to award the design contract in October 2002, complete the design by January 2004, award the construction contract by June 2004 and complete construction by January 2006.

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PART I. A. SUMMARY OF PROJECT INFORMATION				
Location	National Mall, Washington , DC			
Program Unit Sponsor	National Museum of American History, Behring Center			
Account Title	Facilities Capital, Revitalization			
Account Identification Code				
Name of Project	Revitalize NMAH-BC Public Space			
Project Number	0103101			
Project Partners	Gift of Kenneth Behring			
This Project Is:	New Construction:		Revitalization of Existing Facility:	XX
Project/Useful segment is funded:	Incrementally: XX		Fully:	
Did the Capital Planning Board approve the project?			Date:	May 2002
Did the Capital Planning Board approve the current funding proposal?			Date:	May 2002
Did the Smithsonian Board of Regents approve the project?			Date:	Sept 2001
Did Congress authorize the project? (If not required, indicate NA)			Date:	NA

B. PROJECT BASELINE																
Initial Baseline Date: August 2002	Date of Baseline Change:	Indicate Here if Preliminary: XXXX														
<p><u>Preliminary Project Scope:</u> Establish a long range public space master plan and modernize the Museum to clarify visitor circulation and amenities. Square footage in the project has not been determined but potentially all six floors of the Museum are included in the major renewal which redefines the visitor experience. In parallel with the program renewal, systems work includes upgrade to rest rooms, fire detection and alarm systems, life safety egress, elevators and escalators, circulation corridors and amenity lobbies, exterior window walls, fountains, exterior hardscape and landscape, and new chilled water plant. The NMAH-BC is eligible for the National Register of Historic Places due to its location on the National Mall.</p> <p><u>Preliminary Project Phasing:</u> Due to incremental funding from both federal and trust sources and the desire to keep the Museum open during construction, the plan may be phased over a number of years. Possible phasing may be as follows:</p> <ul style="list-style-type: none"> a.) Central Core up to third floor level, rest rooms, elevators and escalators, fire detection system, shell for S-SB b.) Business venture concessions and retail space relocated to current parking garage area c.) Extend core to fourth floor, relocating mechanical rooms to capture additional exhibit space d.) New glass enclosure, including entry pavilions on the north and south sides, landscape renewal including fountains, traffic and pedestrian hardscape. <p><u>Preliminary Cost Estimate:</u> Donor funds in hand, \$35 million and Federal funds planned, \$50 million.</p>																
<p>2. Detail of Overall Project Schedule</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;"></th> <th style="width: 30%;">Month & Year</th> </tr> </thead> <tbody> <tr> <td>Planning/Design Start Date:</td> <td>May 2002</td> </tr> <tr> <td>Design Completion Date:</td> <td>TBD</td> </tr> <tr> <td>Construction Start Date:</td> <td>TBD</td> </tr> <tr> <td>Construction Completion Date:</td> <td>TBD</td> </tr> <tr> <td>Building Occupancy Date:</td> <td>TBD</td> </tr> <tr> <td>Public Opening Date (if applicable):</td> <td>TBD</td> </tr> </tbody> </table>				Month & Year	Planning/Design Start Date:	May 2002	Design Completion Date:	TBD	Construction Start Date:	TBD	Construction Completion Date:	TBD	Building Occupancy Date:	TBD	Public Opening Date (if applicable):	TBD
	Month & Year															
Planning/Design Start Date:	May 2002															
Design Completion Date:	TBD															
Construction Start Date:	TBD															
Construction Completion Date:	TBD															
Building Occupancy Date:	TBD															
Public Opening Date (if applicable):	TBD															

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3. Detail of Total Project Cost Estimate		Amount in \$Millions
CAPITAL COSTS		
Planning/Design		5.0
Revitalization/Construction		36.0
Contingency	Percentage: 15% of 36 million	5.6
Construction Management	Percentage: 8.5% of 36 million	3.0
Building Commissioning	Percentage: 1% of 36 million	.4
TOTAL CAPITAL COSTS:		50.0
Non-capital Costs (fundraising, relocation, one-time occupancy costs, exhibits installation)		35.0
TOTAL PROJECT COST		85.0
Explanation of Basis/methodology for Cost Estimates (indicate stage of design or other assumptions used)		

C. SUMMARY OF FUNDING FOR PROJECT STAGES									
\$ Millions (1 decimal place)	Prior	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	Outyears	Total
INITIAL PROJECT BASELINE: prelim.	FY: 2004	Request to OMB						Date: Sept 2002	
FEDERAL Capital Costs			9.5	11.0	22.0			7.5	50.0
TRUST Capital Costs	.25	3.2	31.55						35.0
TOTAL CAPITAL COSTS	.25	3.2	41.05	11.0	22.0			7.5	85.0
Non-Capital Costs									
TOTAL PROJECT FUNDS:	.25	3.2	41.05	11.0	22.0			7.5	85.0
PRIOR BUDGET REQUEST	FY:	Request to OMB or Congress						Date:	
FEDERAL Capital Costs									
TRUST Capital Costs									
TOTAL CAPITAL COSTS									
Non-Capital Costs									
TOTAL PROJECT FUNDS:									
CURRENT BUDGET REQUEST	FY: 2004	Request to OMB						Date: Sept 2002	
FEDERAL Capital Costs			9.5	11.0	22.0			7.5	50.0
TRUST Capital Costs	.25	3.2	31.55						35.0
TOTAL CAPITAL COSTS	.25	3.2	41.05	11.0	22.0			7.5	85.0
Non-Capital Costs									
TOTAL PROJECT FUNDS:	.25	3.2	41.05	11.0	22.0			7.5	85.0
CHANGES (Prior Request to Current Request)									
FEDERAL Capital Costs			0	0	0			0	0
TRUST Capital Costs	0	0	0						0
TOTAL CAPITAL COSTS	0	0	0	0	0			0	0
Non-Capital Costs									
TOTAL PROJECT FUNDS:	0	0	0	0	0			0	0
Explanation of Baseline Change (detail of factors that affected changed scope, schedule and/or costs):									

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D. OPERATING COST PROJECTIONS			
ESTIMATED ANNUAL OPERATING COST	Date of First Full Year Occupancy (FY):	FTE	Amount (\$M)
Programmatic Costs (Federal and Trust)			TBD
Facilities Costs (Operations & Maintenance, Security, Safety):			TBD
Central SI Support Costs (Overhead):			TBD
TOTAL ANNUAL OPERATING COST:			TBD
Explanation of basis/methodology for cost estimates (assumptions used, notes on unit preparing estimates):			
Estimates of future operating costs will be completed once more planning and design has been completed.			

E. SUMMARY OF OPERATIONS FUNDING																
\$ Millions (1 decimal place)	Prior		FY 03		FY 04		FY 05		FY 06		FY 07		FY 08		Outyears	
	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$		
INITIAL OPERATIONS ESTIMATE:	FY:		Request to OMB or Congress:												Date:	
TOTAL FEDERAL OPERATING COST:																
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:																
PRIOR BUDGET REQUEST	FY:		Request to OMB or Congress:												Date:	
TOTAL FEDERAL OPERATING COST:																
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:																
CURRENT BUDGET REQUEST	FY:		Request to OMB or Congress:												Date:	
TOTAL FEDERAL OPERATING COST:																
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:																
CHANGES (Prior Request to Current Request)																
TOTAL FEDERAL OPERATING COST:																
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:																
Explanation of Change:																

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PART II: JUSTIFICATION AND OTHER INFORMATION

A. Justification (describe why the project is needed, including specific dates required, programs supported, and alternatives analysis): The fire detection and alarm system is outdated and requires excessive maintenance. The public rest rooms are outdated, do not meet code in fixture quantity, and are not fully accessible. Public circulation areas, amenities, lobbies, seating, telephones and secure coat check facilities are worn and in disrepair. The elevators are not fully accessible and are not all on emergency power. Paths of emergency egress are blocked by offices, exhibits, and the day care center, creating life safety hazards for the public, staff and their families. Fire separation doors are a life safety hazard and require excessive maintenance. Areas of rescue assistance for the disabled are needed. The fifth floor roof terrace, used for many public events, is not fully accessible. The exterior window walls are deteriorated. Site landscaping, hardscape, and special features, such as the Constitution Avenue fountain and west reflecting pool, are in disrepair, are safety hazards, and need renewal. The chilled water system, including chillers, pumps and cooling towers, has required significant repairs and needs total replacement. The chillers contain CFC refrigerants that must be phased out to comply with environmental laws. Steam condensate piping and pressure reducing valve stations are in poor condition, and transformer vaults are not air conditioned, threatening power failures due to heat.

B. Project/Program Management (indicate key staff/organization responsible for this project):

Project Executive (if applicable):	NA
Project Manager:	Judson McIntire
Design Manager:	Robert Ridgley (concept design phase)
Construction Manager (Res. Engineer):	TBD
Program Manager/Liaison & Unit	Randall Inouye

Other Management Plans (Executive/Steering Committees, etc.)
 To be determined.

C. Acquisition Plan (describe proposed contracting methodology):

The A-E, Skidmore Owings & Merrill is teamed with a construction contractor, Turner Construction, for a design/ build delivery system.

PART III: CURRENT STATUS (describe performance against milestones)

Concept planning is in progress, funded by the gift of Kenneth Behring. Once a concept has been finalized, collaborative planning and design can move forward on both the facility (federal) and program (trust) aspects of the project. No milestones have been set.

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PART I. A. SUMMARY OF PROJECT INFORMATION				
Location	National Mall, Washington, DC			
Program Unit Sponsor	National Museum of Natural History			
Account Title	Facilities Capital, Revitalization			
Account Identification Code				
Name of Project	Ongoing Revitalization, National Museum of Natural History			
Project Number				
Project Partners				
This Project Is:	New Construction:		Revitalization of Existing Facility:	XXX
Project/Useful segment is funded:	Incrementally: XXX		Fully:	
Did the Capital Planning Board approve the project?			Date:	1992
Did the Capital Planning Board approve the current funding proposal?			Date:	May 2002
Did the Smithsonian Board of Regents approve the project?			Date:	1992
Did Congress authorize the project? (If not required, indicate NA)			Date:	NA

B. PROJECT BASELINE		
Initial Baseline Date: 1992	Date of Baseline Change: August 2002	Indicate Here if Preliminary: XXXX
<p>1. Project Scope (specific description of work effort, including square footage involved, historical significance of existing building, project phases if applicable, highlight changes from original baseline):</p> <p>Replace HVAC, ductwork, lighting, and electrical wiring. Abate and encapsulate asbestos and lead. Restore and upgrade the windows in the original building. Upgrade fire protection and detection systems, storm water systems, water distribution, sanitary, and power systems. Remove and replace the mezzanines to meet acceptable fire protection and accessibility standards. Modify staff restrooms to meet ADA requirements. Update the existing security system. Create an accessible entrance from the Mall. Create a safe storage facility for the variety of hazardous chemicals used in the Museum's scientific research departments. Repair and replace deteriorated piping systems in the tunnels beneath the ground floor of the museum, including primary fire protection sprinkler mains, storm and sewage mains, and miscellaneous water and steam piping. Upgrade emergency power systems to bring the building's life safety systems into code compliance.</p> <p>The current (FY 2004) phase of the project continues the on-going Major Capital Revitalization of the Natural History Building. The Institution will create an accessible entrance to the museum from the Mall that is sensitive to the architecture of the existing building, while providing a direct route for persons with disabilities to the focal point of the museum, its Rotunda. The project also continues the renovation of the building's mechanical and electrical systems and associated work. The particular focus of the current project is the renovation of the 6th Floor of the building's West Wing. An all new air conditioning and heating distribution system is to be installed; the electrical system upgraded, including a new lighting system; and space modifications made to provide a more flexible and serviceable working environment.</p>		
2. Detail of Overall Project Schedule		Month & Year
Planning/Design Start Date:		1985
Design Completion Date:		TBD (each phase designed separately)
Construction Start Date:		1990
Construction Completion Date:		Est. 2012
Building Occupancy Date:		NA
Public Opening Date (if applicable):		NA

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3. Detail of Total Project Cost Estimate		Amount in \$Millions
CAPITAL COSTS		
Planning/Design		34.0
Revitalization/Construction		212.0
Contingency	Percentage: 12% of 212.0	26.0
Construction Management	Percentage: 10% of 212.0	21.0
Building Commissioning	Percentage: 1% of 212.0	2.0
TOTAL CAPITAL COSTS:		295.0
Non-capital Costs (fundraising, relocation, one-time occupancy costs, exhibits installation)		0
TOTAL PROJECT COST		295.0
Explanation of Basis/methodology for Cost Estimates (indicate stage of design or other assumptions used)		
Portions of estimate represent completed work; cost of remaining work based on experience with prior phases.		

C. SUMMARY OF FUNDING FOR PROJECT STAGES									
\$ Millions (1 decimal place)	Prior	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	Outyears	Total
INITIAL PROJECT BASELINE:	FY: 2003	Request to OMB						Date: Sept 2001	
FEDERAL Capital Costs	88.0	22.0	18.0	18.0	18.0	46.0	30.0	55.0	295.0
TRUST Capital Costs									
TOTAL CAPITAL COSTS	88.0	22.0	18.0	18.0	18.0	46.0	30.0	55.0	295.0
Non-Capital Costs									
TOTAL PROJECT FUNDS:	88.0	22.0	18.0	18.0	18.0	46.0	30.0	55.0	295.0
PRIOR BUDGET REQUEST	FY: 2003	Request to Congress						Date: Feb 2002	
FEDERAL Capital Costs	88.4	10.0	29.0	35.6	18.0	42.8	30.0	41.2	295.0
TRUST Capital Costs									
TOTAL CAPITAL COSTS	88.4	10.0	29.0	35.6	18.0	42.8	30.0	41.2	295.0
Non-Capital Costs									
TOTAL PROJECT FUNDS:	88.4	10.0	29.0	35.6	18.0	42.8	30.0	41.2	295.0
CURRENT BUDGET REQUEST	FY: 2004	Request to OMB						Date: Sept 2002	
FEDERAL Capital Costs	88.4	10.0	11.0	43.6	43.0	36.0	33.0	30.0	295.0
TRUST Capital Costs									
TOTAL CAPITAL COSTS	88.4	10.0	11.0	43.6	43.0	36.0	33.0	30.0	295.0
Non-Capital Costs									
TOTAL PROJECT FUNDS:	88.4	10.0	11.0	43.6	43.0	36.0	33.0	30.0	295.0
CHANGES (Prior Request to Current Request)									
FEDERAL Capital Costs	0	0	-18.0	+8.0	+25.0	-6.8	+3.0	-11.2	0
TRUST Capital Costs									
TOTAL CAPITAL COSTS	0	0	-18.0	+8.0	+25.0	-6.8	+3.0	-11.2	0
Non-Capital Costs									
TOTAL PROJECT FUNDS:	0	0	-18.0	+8.0	+25.0	-6.8	+3.0	-11.2	0
Explanation of Baseline Change (detail of factors that affected changed scope, schedule and/or costs):									
FY 2004 estimate was lowered from the initial baseline for this phase of work due to other pressing SI priorities for that budget year; remaining work was redistributed in the outyears to match current plans.									

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D. OPERATING COST PROJECTIONS			
ESTIMATED ANNUAL OPERATING COST	Date of First Full Year Occupancy (FY):	FTE	Amount (\$M)
Programmatic Costs (Federal and Trust)			
Facilities Costs (Operations & Maintenance, Security, Safety):		0	.2
Central SI Support Costs (Overhead):			
TOTAL ANNUAL OPERATING COST:		0	.2
Explanation of basis/methodology for cost estimates (assumptions used, notes on unit preparing estimates):			
No additional operating costs currently anticipated beyond an increase in utilities used by new equipment.			

E. SUMMARY OF OPERATIONS FUNDING																
\$ Millions (1 decimal place)	Prior		FY 03		FY 04		FY 05		FY 06		FY 07		FY 08		Outyears	
	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$	FTE	\$
INITIAL OPERATIONS ESTIMATE:	FY: 2003				Request to Congress								Date: Feb 2002			
TOTAL FEDERAL OPERATING COST:				.2		.2		.2		.2		.2		.2		.2
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:				.2		.2		.2		.2		.2		.2		.2
PRIOR BUDGET REQUEST	FY: 2003				Request to Congress								Date: Feb 2002			
TOTAL FEDERAL OPERATING COST:				.2		.2		.2		.2		.2		.2		.2
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:				.2		.2		.2		.2		.2		.2		.2
CURRENT BUDGET REQUEST	FY: 2004				Request to OMB								Date: Sept 2002			
TOTAL FEDERAL OPERATING COST:				.2		.2		.2		.2		.2		.2		.2
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:				.2		.2		.2		.2		.2		.2		.2
CHANGES (Prior Request to Current Request)																
TOTAL FEDERAL OPERATING COST:				0		0		0		0		0		0		0
TOTAL TRUST OPERATING COST:																
TOTAL ANNUAL OPERATING COST:				0		0		0		0		0		0		0
Explanation of Change:																

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PART II: JUSTIFICATION AND OTHER INFORMATION

A. Justification (describe why the project is needed, including specific dates required, programs supported, and alternatives analysis):

The windows in the main building are original and are so badly deteriorated they no longer provide a proper seal; they are also covered with layers of lead-based paint. The roof system above the rotunda and the major halls was installed in 1909, with portions replaced in the 1950s. The roof over the original building is now being replaced. The 40-year-old HVAC, control, fire protection and suppression, and laboratory exhaust systems are all 15 years past their projected normal useful life and break down frequently. The automatic temperature control system is obsolete and does not operate satisfactorily to maintain stable temperature and humidity necessary for long-term preservation of the collections. Ninety percent of the electrical lighting and power panels in the building are more than 30 years old. The emergency power system is inadequate to operate the more than 30 elevators, 3 fire pumps, and emergency lighting in the building in the event of a major power outage. Restrooms for the public, and some for staff, have been modified to make them accessible, but 22 staff restrooms in the building still do not meet ADA requirements. Asbestos has been abated in all major equipment rooms and in the attics, but it remains in duct wrap, mastic, pipe insulation, and most of the vinyl floor tile. Lead in old paint is present throughout the building, and must be abated or encapsulated. To meet pressing space needs, mezzanines have been added over the years in a haphazard fashion; none have sufficient fire separation from adjacent spaces, they are inaccessible to persons with disabilities, and many are overcrowded to the point of structural stress. None of these mezzanines can be renovated to meet code requirements. They must be removed or replaced. The Museum continues to outgrow its quarters, diminishing the space available for public use. When the building opened in 1910, 220,000 square feet of exhibit space was provided. Today, visitation has increased a thousand fold from the earliest days of the Museum, yet exhibits currently occupy 25 percent less space. Escalators installed in the 1970s are poorly placed and do not serve visitor needs. The museum's main public entrance from the National Mall, used by 80% of the museum's visitors, is not accessible to persons with disabilities. Presently, the only accessible entrance to the museum is at Constitution Avenue, a three-block journey for those arriving at the Mall entrance.

B. Project/Program Management (indicate key staff/organization responsible for this project):

Project Executive (if applicable):	
Project Manager:	Acting Project Mgr.: Sheryl Kolasinski, Director, Office of Project Management, OFEO
Design Manager:	Various
Construction Manager (Res. Engineer):	Various
Program Manager/Liaison & Unit	Jerome Conlon, Deputy Asst. Director for Special Projects, NMNH
Other Management Plans (Executive/Steering Committees, etc.)	

C. Acquisition Plan (describe proposed contracting methodology):

Bids for each phase are solicited via a request for proposal in the Commerce Business Daily. Competition is based on best value, technical ability of offerers and price. Contracts are awarded on a firm fixed price basis.

PART III: CURRENT STATUS (describe performance against milestones)

Construction completed on the NMNH renewal includes the central cooling plant and emergency generator, asbestos abatement in all mechanical spaces and attics, replacement of all windows in the east and west wings, roof replacement for the entire building, HVAC equipment replacement, and the renovation of three floors in the east wing and a portion of the third floor of the main building.

In FY 2003, the Institution plans to renovate a second portion of the third floor main building, the sixth floor of the west wing, and exhibit hall 30. These phases will include the complete building system restoration and renewal for approximately 50,000 square feet of the building. The hall 30 project space will be restored and reverted to gallery space and is coordinated with major exhibit reinstallation planned for this hall. Restoration and renewal will include complete replacement and upgrade of the HVAC system, electrical distribution system, fire protection and detection, plumbing systems, lighting, architectural restoration, and asbestos and lead abatement.

A concept design has been completed for the proposed accessible entrance to the museum from the Mall. The next steps would be reviews of this design concept by the Commission of Fine Arts and the National Capital Planning Commission. The design will also be coordinated with security measures to be implemented at the Mall entrance as part of the anti-terrorism initiative. A schematic design is nearing completion for the revitalization project for the 6th Floor of the building's West Wing.

PART I: CAPITAL ASSET PLAN AND BUSINESS CASE

Agency: Smithsonian Institution

Bureau: (OIA)

Account Title: Salaries and Expenses

Account Identification Code: 33-0100-0

Program Activity:

Name of Project: Enterprise Resource Planning System

Unique Project Identifier: 452-00-01-01-01-1001-00

Project Initiation Date: 4/1998

Project Planned Completion Date: 4/2005

This Project is: Initial Concept____ Planning____ Full Acquisition X Steady State____
Mixed Life Cycle____Project/useful segment is funded: Incrementally____ Fully XWas this project approved by OMB for previous Year Budget Cycle? Yes X NoDid the Executive/Investment Review Committee approve funding for this project this year? Yes X NoDid the CFO review the cost goal? Yes X NoDid the Procurement Executive review the acquisition strategy? Yes X NoIs this investment included in your agency's annual performance plan or Multiple agency annual performance plan? Yes X NoDoes the project support homeland security goals and objectives, i.e.,
1) improve border and transportation security, 2) combat bio-terrorism,
3) enhance first responder programs; 4) improve information sharing to
decrease response times for actions and improve the quality of decision
making? Yes No XIs this project information technology (see Section 300.4(e) for a definition)? Yes X No*For information technology projects only:*a. Is this project a financial management system
(see section 42.2 for a definition)? Yes X NoIf so, does this project address a FFMIA compliance area? Yes X No

If yes, which compliance area? Federal financial system requirements

b. Does this project implement electronic transactions or record keeping
that is covered by the Government Paperwork Elimination Act (GPEA)? Yes No Xc. Was a privacy impact assessment performed for this project? Yes No Xd. Was this project reviewed as part of the FY 2002 Government
Information Security Reform Act review process? Yes No X

If yes, were any weaknesses found? Yes No

Have the weaknesses been incorporated into the agency's corrective
action plans?e. Has this project been identified as a national critical operation
or asset by a Project Matrix review or other agency determination? Yes No X

e.1 If no, is this an agency mission critical or essential service, system, operation, or asset (such as those documented in the agency's COOP Plan), other than those identified above as national critical infrastructures?

Yes ☒ No

SUMMARY OF SPENDING FOR PROJECT STAGES

(\$ in thousands)

Project Costs	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total
Analysis Phase	1,400	0	0	0	0	0	0	0	1,400
Financials Phase ¹	494	3,300	0	0	0	0	0	0	3,794
Financials Phase ²	0	1,449	8,544	1,683	0	0	0	0	11,676
HR Phase 1 ³	0	0	1,280	4,000	0	0	0	0	5,280
Travel Mgr Interface ⁴	0	0	0	257	0	0	0	0	257
HR Phase 2 ⁵	0	0	0	480	2,744	0	0	0	3,224
Develop. Platform	475								475
ERP SW	1,511	0	320	0	0	0	0	0	1,831
Acquisition:									
Budgetary Resources:	3,880	4,749	10,144	6,420	2,744	0	0	0	27,937
Outlays:	3,880	4,132	9,442	6,904	3,222	357			27,937
Appl. Maint. & Ops		630	1,044	2,775	5,678	5,427	6,195	6,195	27,944
IT Operations		821	812	1,160	1,160	1,160	1,160	1,160	7,433
Maintenance:									
Budgetary Resources:		1,451	1,856	3,935	6,838	6,587	7,355	7,355	35,377
Outlays:		1,262	1,804	3,664	6,461	6,620	7,255	7,355	34,421
Total , All Stages:									
Budgetary Resources:	3,880	6,200	12,000	10,355	9,582	6,587	7,355	7,355	63,314
Outlays:	3,880	5,394	11,246	10,568	9,683	6,977	7,255	7,355	62,358

I.A. Project Description

The Smithsonian plans to incrementally implement the *PeopleSoft* Enterprise Resource Planning (ERP) commercial software product through FY 2005 in order to meet its financial management and human resources management needs. Initial modules include the general ledger, accounts payable, and purchasing. Work will begin on the remaining 7 financial software modules and 3 human resource management software models in FY 2003. The Smithsonian's Capital Planning Board approved the ERP project on November 28, 2000. The Financial Management Committee, chaired by the Chief Financial

¹ General Ledger, Accounts Payable, and Purchasing

² Procurement, Budgets, Projects, Billing, Grants, Assets, and Accounts Receivable

³ Human Resources, Time & Labor, Payroll Interface

⁴ Integration of existing Travel Manager system with the ERP

⁵ Benefits Administration

Officer, serves as a steering committee for the project and is responsible for reviewing the ERP project on a regular basis and assuring functional requirements are being met in a timely and cost effective manner.

I.B. Justification

1. How does this investment support your agency's mission and strategic objectives?

The ERP system supports the Smithsonian's strategic goal of achieving management excellence. Specifically it supports an Institutional objective to bring its information technology systems and functions up to date by modernizing the financial and human resources management systems.

The Institution's financial systems have been in a fragile state. The primary financial system, Smithsonian Financial System (SFS), is based on a technologically obsolete, commercial financial management software product that has not been supported by its software vendor since 1997. Each Smithsonian unit has had to develop its own system to manage financial activities. Since these tools and systems operate essentially in a stand-alone fashion with limited automated security safeguards, the integrity of the data is questionable. Data is manually key-entered by the units in their local systems and then again in SFS. The Institution has no way to capture data at the source and re-use it for multiple purposes, which leads to errors, inconsistent information, extra work, and re-work. Reconciliation of records is a difficult, labor-intensive task, and the absence of real-time information about financial activities limits our ability to develop a complete picture to support sound business decisions.

The Smithsonian cannot continue to sustain its mission without having a modern resource management system. In the absence of implementing new financial systems, automated internal controls will continue to erode, Smithsonian assets will be at high risk, and the likelihood of maintaining our clean audit record becomes problematic. The Institution is concerned that SFS could fail at any time. SFS supports only the functions of general ledger, accounts payable, and purchasing and cannot be adapted to serve the financial management and decision-making needs of the Institution.

Sound planning and effective use of the Smithsonian Institution's resources and achievement of strategic goals are dependent on the availability of accurate financial and human resources data. For the Smithsonian to successfully manage its financial and human resources information and support both its ongoing and new activities, the Institution must adopt a cohesive approach for managing these resources in order to provide accurate and current information on the functions supported, as well as historical snapshots in time, that may be analyzed to discover trends. This information can be used by the Chief Financial Officer and Smithsonian management at all levels for proactive decision making to support investment decisions as well as management of the core financial activities of budget formulation, justification, and execution; financial accounting (standard general ledger, subsidiary ledgers, transaction registers – grants and contracts, revenues, and fund-raising pledges and payments); preparation of financial statements and reports; audit and certification of payment vouchers; payroll; and purchasing.

The Institution also relies on SFS to support procurement. Major Smithsonian units have augmented SFS with stand-alone systems. SFS accommodates invoice processing, but does not accommodate other functional requirements such as clauses and justifications. Purchasing agents must mesh SFS data with e-mail, facsimile, and word processing documents to complete a procurement transaction. Since SFS is not accessible to all Smithsonian units for procurement, there is no comprehensive database of critical management information that might allow discounts for bulk purchases to be negotiated.

The Smithsonian must also improve the management of the core human resource management activities of personnel action processing, time and attendance, recruiting, training, and benefits administration. Some human resource data is available electronically; however, the processes are not automated. The

distribution of human resources and payroll data to unit managers requires 13 separate manual updates each pay period. More than 12,000 personnel actions start in a typewriter and work their way from desk to desk, building to building over weeks until they are completed. As with the financial management systems, there is no way to capture the data at the source and re-use it for multiple purposes; this leads to errors, extra work, and re-work. In addition, Smithsonian units have developed their own "cuff" systems to help maintain personnel information. These information systems, or the lack thereof, fail to provide the Institution's Office of Human Resources and Smithsonian units with the information necessary to serve Smithsonian managers and employees. Many human resource specialists have become entrenched in the administrative processes that inhibit their ability to provide necessary advisory and consulting services. Current human resource processes are labor-intensive and paperbound.

2. How does it support the strategic goals from the President's Management Agenda?

The ERP system supports the President's Management Agenda goal to Improve Financial Performance. This system will enable the Smithsonian to produce accurate and timely financial information to support operating, budget, and policy decisions.

3. Are there any alternative sources in the public or private sectors that could perform this function?

The Smithsonian does not consider cross-servicing or outsourcing the entire financial and human resources management functions as appropriate because both are integral to the operations of the Institution in meeting its mission. The Institution currently has a cross-servicing arrangement with USDA's National Finance Center for payroll services and expects to continue this arrangement for the foreseeable future. The Smithsonian contracted for accounts payable services in FY 2002. The service provider will use the SFS initially and the replacement ERP system in the future.

The Smithsonian has held preliminary discussions with two federal agencies and two Managed Service Providers (MSPs) and will consider cross-servicing or outsourcing ERP production processing through another Federal agency or an MSP to coincide with the renovation of the Arts and Industries Building now scheduled for FY 2005. Factors that will be considered are the financial stability of the MSP, service level agreement, security, and cost.

4. If so, explain why your agency did not select one of these alternatives.

The Smithsonian has held preliminary discussions with two federal agencies and two Managed Service Providers (MSPs) and will consider cross-servicing or outsourcing ERP production processing through another Federal agency or an MSP to coincide with the renovation of the Arts and Industries Building now scheduled for FY 2005. Factors that will be considered are the financial stability of the MSP, service level agreement, security, and cost.

5. Who are the customers for this project?

Customers for the ERP system include Smithsonian Institution management and all Smithsonian units.

6. Who are the stakeholders of this project?

Key stakeholders for the ERP project include the Chief Financial Officer, Comptroller, Treasurer, Office of Planning, Management, and Budget, Office of Contracting, Smithsonian Unit Administration Officers, and the Director of the Office of Human Resources.

7. If this is a multi-agency initiative, identify the agencies and organizations affected by this initiative.

N/A

8. How will this investment reduce costs or improve efficiencies?

The ERP system will replace 27 financial systems used throughout the Institution and 20 desktop database systems within the Office of Human Resources. In addition, a single ERP system will eliminate redundancy of effort and of data, reduce opportunities for errors, reduce the amount of time and frustration currently devoted to reconciling data between central and unit records, automate thousands of routine and repetitive transactions now performed manually, provide more opportunities for performing value-added work, and create critical linkages for better management of financial and human resources.

9. List all other assets that interface with this asset.

Facilities Management System
 Smithsonian Institution Research Information System
 Travel Manager

Have these assets been reengineered as part of this project? Yes ____ No X.

I.C. Performance Goals and Measures (All Assets)

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY 2001)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
2005–2008	Management Excellence	1. Qualified audit opinion with weaknesses noted. 2. SI spent \$48.5 million on staff salaries for finance, HR, and unit admin staff. 3. SI spent \$9.5 million to operate and maintain 27 financial systems and 20 HR systems.	1. Unqualified audit opinion. 2. Workforce productivity increase in OHR, Comptroller, and units of 25 %. 3. Reduce annual cost of operating and maintaining finance and HR systems by \$2.1 million per year.		1. Results of independent audit of financial systems. 2. SI can re-deploy \$12.1 million for in-house staff to perform other functions. 3. Reduction in annual costs to operate and maintain financial and HR systems.	

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY 2001)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
		4. SI spent \$200,000 to re-key time sheets.	4. Eliminate re-keying of payroll data.		4. Reduction in payroll error rate.	
		5. Financial reports are distributed to units in 5 to 7 work-days.	5. Provide financial reports to SI units not later than the first business day of each month.		5. Number of workdays it takes to provide financial reports.	

I.D. Program management

1. Is there a program manager? Yes. Deron Burba has been assigned as the Enterprise Resource Planning (ERP) system project manager.
2. Is there a contracting officer assigned to the project? If so, what is his/her name? Yes, Lynn Spurgeon has been assigned as the contracting officer.
3. Is there an Integrated Project Team? Yes
- 3.A. If so, list the skill set represented.

The project team is following a disciplined system development life cycle process defined in Smithsonian Directive 920 and tailored for implementing a commercial software product. In order to deploy the ERP system effectively, the Smithsonian has established an Integrated Project Team that recognizes the complementary roles of functional users, system developers, and other supporting organizations. Work Groups have been established for each ERP module and include functional experts from central staff (e.g., Comptroller) and representatives of units (e.g., National Museum of Natural History). The Work Groups also include subject matter experts who will focus on a specific ERP module. End-user participation and involvement is crucial to the success of the ERP project. End users will participate early in the ERP project through the Work Groups in order to obtain clear, validated functional requirements. The project manager, under the direction of the Chief Information Officer, will lead an integrated project team in developing and implementing the ERP system. The Smithsonian has established a core technical team augmented by functional work groups for each ERP software module. The work groups include representation from throughout the Smithsonian and will:

- define and refine functional processes and data requirements for each ERP module
- define ERP module workflow roles, route, and rules
- analyze business process for fit with the ERP software package and identify implementation options
- participate in acceptance testing
- review and validate end-user training for each ERP module, ensuring that

- o end users have initial training to support a newly installed ERP module
 - o end users are adequately trained before the ERP module is fully deployed
 - participate in ERP module implementation in each Smithsonian unit
 - o serve as change agents, coordinating changes to the work environment brought on by implementation of new business processes.
4. Is there a sponsor/owner? Yes, the Chief Financial Officer

I.E. Alternatives Analysis

1. The Smithsonian considered two alternatives: implementing a commercial ERP software product and upgrading the current systems. The Institution prepared an economic analysis that compared the two alternatives over a 10-year system life. The Smithsonian determined that implementing a commercial ERP software product is preferable to developing a new system or upgrading SFS. The following alternatives were considered in this analysis:

Alternative	Description
Alternative 1	<i>Implement a commercial financial and human resources management software product.</i> Alternative 1 includes purchasing a commercial software product, obtaining contractual services to help tailor the commercial software product to reflect the Smithsonian's re-engineered business processes, to perform quality assurance and independent testing, and to provide training.
Alternative 2	<i>Maintain current systems:</i> The Institution currently has 27 systems in operation across all units that support financial management and 20 desktop database systems within the Office of Human Resources that support human resource management. For the purposes of this economic analysis, the cost to operate and maintain these systems and upgrade SFS, payroll interface, and various versions of unit cuff financial systems are projected through FY 2010. No benefits will accrue from this alternative.

2. Summarize the results of your life cycle cost analysis performed for each investment and the underlying assumptions.

The cost to implement and operate the ERP system and to operate existing systems during the phase-in period of the 10-year system life is \$87.2 million through FY 2010. The cost to operate and maintain existing systems during the 10-year system life is \$90 million. A key assumption in the analysis was that the Institution must make a significant investment in the existing financial management system to assure its viability—the Institution is operating the 1986 version of a commercial financial management software product.

3. Which alternative was chosen and why? Define the Return on Investment (ROI).

The Institution selected Alternative 1, *Implement a commercial financial and human resources management software product.* By implementing a commercial software product, the Smithsonian minimizes risk by acquiring a fully developed and functional system and will comply with federal IT management guidance that encourages the acquisition of commercial software products over developing

application software. During the 10-year systems life, the Smithsonian expects to realize \$108.8 million in undiscounted benefits including cost avoidance amounting to \$13.5 million associated with operating and maintaining the current systems. Furthermore, the current systems cannot support re-engineered business processes and the increased demand for services and the Smithsonian Financial System cannot meet JFMIP requirements.

3. A. Are there any quantitative benefits that will be achieved through this investment (e.g., systems savings, cost avoidance, stakeholder benefits, etc)?

The Smithsonian prepared an economic analysis that compares upgrading the current systems with replacing them with the ERP system over a 10-year system life. The “best case” scenario projects a \$21.7 million savings through workforce productivity increases of 25 percent in the Office of Human Resources, the Comptroller’s office and administrative staff in Smithsonian Institution units and cost avoidance associated with replacing 27 financial management and 20 human resource management systems by implementing the ERP System. Productivity savings are based on predicted workload growth and the existing number of staff. Cost avoidance takes into account the present operating costs of the systems being replaced during the implementation period. The economic analysis included a sensitivity analysis that considered several scenarios that included cost overruns of 10 percent and 20 percent and reductions of productivity savings from 25 percent to 10 percent in Smithsonian units.

3. B. For alternative selected, provide financial summary, including Net Present Value by Year and Payback Period Calculations:

Under the “best case” or “expected outcome” scenario, the economic benefits generated by the ERP system during the 10-year system life outweigh the investment costs. The following chart depicts the “best case” scenario.

Cost and Benefits Under “Best Case” Scenario for the ERP System

Fiscal Year	Expected Yearly Cost (incl. Development & Ongoing Costs)	Expected Yearly Benefit Productivity Increase	Expected Yearly Benefit Cost Avoid. for Repl Sys	Expected Yearly Benefit Total Yearly Benefit	Disc. Factors for 7%	PV of Costs (Col 2 x Col 4)	PV of Benefits (Col 3c x Col 4)
(1)	(2)	(3 a)	(3 b)	(3 c)	(4)	(5)	(6)
FY2001	\$10,303	0		\$0	0.9667	\$9,960	\$0
FY2002	\$11,656	0		\$0	0.9035	\$10,531	\$0
FY2003	\$13,306	\$10,449		\$10,449	0.8444	\$11,236	\$8,823
FY2004	\$10,178	\$12,130		\$12,130	0.7891	\$8,031	\$9,571
FY2005	\$9,333	\$12,131		\$12,131	0.7375	\$6,883	\$8,946
FY2006	\$6,166	\$12,130	\$2,816	\$14,946	0.6893	\$4,250	\$10,302
FY2007	\$6,696	\$12,130	\$2,423	\$14,553	0.6442	\$4,314	\$9,375
FY2008	\$6,830	\$12,130	\$2,312	\$14,442	0.6020	\$4,112	\$8,693
FY2009	\$6,471	\$12,130	\$2,712	\$14,842	0.5626	\$3,641	\$8,350
FY2010	\$6,231	\$12,130	\$3,213	\$15,343	0.5258	\$3,276	\$8,067
Total	\$87,170	\$95,357	\$13,476	\$108,833		\$66,234	\$72,129

The “worst case” scenario projects workforce productivity increases of 25 percent in the Office of Human Resources and the Comptroller’s Office and 10 percent productivity increases for the administrative staff in Smithsonian Institution units. The analysis also takes into account the present operating costs of the systems being replaced during the implementation period and assumes a 20 percent cost overrun. Under the “worst case” scenario, the Smithsonian will realize \$54.4 million through productivity gains and save an additional \$11.9 million through cost avoidance. The following chart depicts the “worst case” scenario.

Cost and Benefits Under “Worst Case” Scenario for the ERP System

Fiscal Year	Expected Yearly Cost (Incl. Development & Ongoing Costs)	Expected Yearly Benefit Productivity Increase	Expected Yearly Benefit Cost Avoid. for Repl. Systems	Total Yearly Benefit	Disc. Factors for 7%	PV of Costs (Col 2 x Col 4)	PV of Benefits (Col 3c x Col 4)
(1)	(2)	(3 a)	(3 b)	(3 c)	(4)	(5)	(6)
FY2001	\$10,303	0		\$0	0.9667	\$9,960	\$0
FY2002	\$11,656	0		\$0	0.9035	\$10,531	\$0
FY2003	\$14,787	\$5,311		\$5,311	0.8444	\$12,486	\$4,484
FY2004	\$11,411	\$7,011		\$7,011	0.7891	\$9,004	\$5,533
FY2005	\$10,253	\$7,012		\$7,012	0.7375	\$7,562	\$5,172
FY2006	\$6,486	\$7,011	\$2,496	\$9,507	0.6893	\$4,471	\$6,553
FY2007	\$7,016	\$7,011	\$2,103	\$9,114	0.6442	\$4,520	\$5,871
FY2008	\$7,150	\$7,011	\$1,992	\$9,003	0.6020	\$4,304	\$5,420
FY2009	\$6,791	\$7,011	\$2,392	\$9,403	0.5626	\$3,821	\$5,290
FY2010	\$6,551	\$7,011	\$2,893	\$9,904	0.5258	\$3,445	\$5,208
Total	\$92,404	\$54,391	\$11,876	\$66,267		\$70,103	\$43,531

The following chart presents costs of operating and maintaining existing financial and human resources systems over a 10-year period in which there are neither productivity gains nor systems cost avoidance.

Cost and Benefits for Operating and Maintaining the Existing Systems

Fiscal Year	Expected Yearly Cost (Incl. Development & Ongoing Costs)	Expected Yearly Benefit Productivity Increase	Expected Yearly Benefit Cost Avoid. for Repl Sys	Total Yearly Benefit	Disc. Factors for 7%	PV of Costs (Col 2 x Col 4)	PV of Benefits (Col 3c x Col 4)
(1)	(2)	(3 a)	(3 b)	(3 c)	(4)	(5)	(6)
FY2001	\$8,035	\$0	0	\$0	0.9667	\$7,767	\$0
FY2002	\$10,491	\$0	0	\$0	0.9035	\$9,479	\$0
FY2003	\$8,638	\$0	0	\$0	0.8444	\$7,294	\$0
FY2004	\$8,379	\$0	0	\$0	0.7891	\$6,612	\$0
FY2005	\$8,594	\$0	0	\$0	0.7375	\$6,338	\$0
FY2006	\$8,982	\$0	0	\$0	0.6893	\$6,191	\$0
FY2007	\$9,119	\$0	0	\$0	0.6442	\$5,874	\$0
FY2008	\$9,142	\$0	0	\$0	0.6020	\$5,503	\$0
FY2009	\$9,183	\$0	0	\$0	0.5626	\$5,166	\$0
FY2010	\$9,444	\$0	0	\$0	0.5258	\$4,966	\$0
Total	\$90,007	\$0	\$0	\$0		\$65,191	\$0

The decision to implement the ERP system is cost beneficial for the Smithsonian whether you use the expected outcome or more conservative "worst case" scenario. Cost aside, a single, integrated ERP system eliminates redundancy of effort and of data and will greatly reduce the opportunity for error. The ERP system will reduce the substantial amount of time and frustration that are currently devoted each month to reconciling data between central and individual organization records. It will automate thousands of routine and repetitive transactions that are now performed manually and provide more opportunity to perform value-added work. Finally, it will create critical linkages that provide for better management of the Institution's financial and human resources.

4. What was the date of your cost benefit analysis? February 2001, updated May 2001

I.F. Risk Inventory and Assessment

There are project-related risks that must be managed before they become problems. Because the commercial software that will drive the ERP system has been successfully implemented in 280 higher education and government organizations and in 5000 organizations around the world, the risks associated with new system development-excessive time delays and cost overruns-are minimized. The following major project-related risks can adversely affect project cost and schedule:

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
March 2001	Organizational and Change Management	SI cannot adapt its business processes to the selected ERP system software product	Low	The Financial Management Committee serves as a steering committee for the ERP project will help assure that all units adapt business process to the selected system so that a minimum of customization will be required.	SI conducted an ERP pilot that validated the design and configuration and identified issues that are being resolved to insure that the new system will support the needs of its units.

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
March 2001	Business	SI will not be able to adequately train staff using the ERP system	Low	SI has planned to train initial work groups and system administrators. One of the critical functions of each work group is to develop and deliver end-user training for each ERP module.	The project team has developed a training plan and identified staff requiring training. For initial modules it began 09/09/02.
April 2002	Data/Info	SI will not have standard definitions and values for program, unit, project type, and designated codes needed to migrate legacy data.	Low	ERP work groups and the Office of the Comptroller will develop standard definitions and values for program, unit, project-type, and designated codes.	In August 2002 the Financial Management Committee approved standard definitions and values for program, unit, and designated codes. Project-type codes will be deferred until the <i>PeopleSoft</i> projects module is implemented.
March 2001	Technology	SI will not have a robust IT infrastructure in place	Medium	SI has initiated a complementary IT project to modernize infrastructure incrementally through FY 2005 and help ensure ERP system access for all units.	SI increased contractor Help Desk & network support services plus bandwidth to remote sites and upgraded network backbone switches.

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
March 2000	Strategic	SI will not have a modern financial and human resources management system in place.	Low	The ERP project meets the Secretary's strategic goals to modernize financial systems.	The first phase of the ERP system was successfully piloted in July 2002. User training began September 9.
July 2002	Security	The IT infrastructure will not have adequate intrusion detection and firewalls in place.	Medium	SI plans to implement an adequate intrusion detection system and redesigned firewall in FY 2004.	SI has reduced the number of services passing through the existing firewall.
March 2001	Privacy	The ERP system will not provide adequate safeguards to protect Privacy Act data.	Low	The system will include mechanisms to insure the security, integrity, and confidentiality of this data.	Internal controls were successfully tested in the ERP system pilot conducted in July 2002.
March 2001	Project Resources	The ERP system project will not be adequately funded.	Medium	Modernizing the Institution's financial and HR management systems is a top priority. It plans to redirect funds from other activities to ensure that this project is adequately funded.	Modernizing the Smithsonian's financial system continues to be one of the Institution's top priorities.

1. What is the date of your risk management plan?

The Institution did not prepare a risk management plan. Risks were identified in the ERP System Boundary Document of March 2001.

I.G. Acquisition strategy

The Institution is implementing a commercial Enterprise Resource Planning software package to meet the Smithsonian's financial management and human resource management needs. The ERP will be implemented incrementally through FY 2005. Initial modules include general ledger, accounts payable, and purchasing. The intent is to adapt Smithsonian processes to the selected ERP software product in order to streamline business processes and assure a cost-effective and speedy implementation. The Smithsonian has relied on existing federal contracts and GSA Schedule to acquire commercial software and system integration and independent verification and validation services and production hardware.

1. Will you use a single contract or several contracts to accomplish this project?

The Smithsonian will use multiple contracts to support the ERP project.

1.A. If multiple contracts are planned, explain how they are related to each other, and how each supports the project performance goals.

The Smithsonian completed a market survey of commercial financial and human resource management software products in January 2001. Initial efforts were directed at narrowing the field of potential software products to those products that met Federal financial management and human resource management functional requirements. Although there are many companies that offer software products and services that support financial management or human resource management functions, there are a limited few that comply with Federal financial management and/or human resource management functional requirements. Based on the market survey, the Smithsonian purchased the *PeopleSoft* commercial ERP software through the GSA Schedule. The selected commercial software product serves the business, academic, and federal market. It is the only software company that advertises its higher education package. This is an important consideration as the Smithsonian environment is closer to a university model than to a manufacturing model for its operating accounts. The selected package was also the first to penetrate the federal human resource management system market and is the dominant commercial human resources management software product in use by Federal agencies.

In addition to the commercial software product, the following sources are being used to support the ERP project:

System Integration: The Smithsonian acquired system integration services through the Department of Commerce's *Commerce IT Solutions* government-wide contract. This was a competition among 41 pre-qualified companies. Past performance was a key evaluation factor in selecting *Commerce IT Solutions* vendors.

System Product Assurance: The Smithsonian acquired independent verification and validation services through the Department of Transportation's *ITOP* government-wide contract.

Production Computer Equipment: The Smithsonian has acquired production computer equipment from the National Aeronautics and Space Administration's *Scientific and Engineering Workstation III (SEWP III)* government-wide contract.

1. What type(s) of contract(s) will you use?

The Institution issued a firm- fixed price contract for system integration services for the analysis phase and time and materials for the implementation of the software modules. The System Product Assurance contract is fixed price.

2.A. For cost reimbursement contracts, define risk not sufficiently covered by the risk mitigation plan to require this type of contract. None.

3. Will you use financial incentives to motivate contractor performance? No.

4. Will you use competition to select suppliers?

Yes, integration and product assurance services are provided via two government-wide contracts. This uses competition among pre-qualified companies.

5. Will you use commercially available or COTS products, or custom-designed products?

Yes. The Smithsonian has purchased the *PeopleSoft* Enterprise Resource Planning commercial software package.

6. What is the date of your acquisition plan? The Institution did not prepare a formal acquisition plan.

7. How will you ensure Section 508 compliance?

The Smithsonian has upgraded to *PeopleSoft* version 8.4, which includes enhanced accessibility features and has been tested against the Architectural and Transportation Barriers Compliance Board standards for section 508 compliance.

I.H. Project and Funding Plan

The information required by this section will be provided by your earned value management system.

The Smithsonian is not able to implement an earned value management system until FY 2005 after deployment of the Projects and Time and Labor modules of the Enterprise Resource Planning System.

I.H.1. Description of Performance Based Management System

The Smithsonian has conducted several studies of its administrative systems during the past five years. In April 1998, the Smithsonian established the Automated Resource Management Committee to gather ideas for the next generation of administrative systems. The Committee consisted of thirty Smithsonian staff representing a broad spectrum of organizations and administrative functions. In July 1999, the Committee recommended that Smithsonian implement a commercially available Enterprise Resource Planning (ERP) system to support its administrative processes.

The Smithsonian will monitor interim results of the ERP project and take action when needed to ensure that the project stays on track. The Smithsonian will monitor the achievement of or deviation from goals by performing functional and technical reviews to ensure that the project is progressing on schedule and within budget and is satisfying program requirements.

To help assure that business requirements are being met, the Financial Management Committee serves as a steering committee for the Smithsonian ERP project. The Committee is composed of senior

administrative officers from the major museums, representatives of the Under Secretaries and the Director of the International Museums, Director of Facilities Engineering and Operations, and the CIO and is chaired by the CFO. The Committee is responsible for defining and validating functional requirements,

for making resources available to support the ERP project, and for reviewing the progress of the ERP project to ensure that functional requirements are being satisfied in a timely and cost-effective manner.

To help assure that quality of the technical work products is acceptable, the Smithsonian has established the System Architecture and Product Assurance office to administer programs for system architecture, quality assurance, and independent testing of application software and information technology infrastructure. The primary purposes of the technical reviews conducted by the Product Assurance office are to improve the quality of intermediate work products, correct defects as early in the life cycle as possible, and prevent problems over the long run. To assist the Product Assurance office, the Smithsonian has acquired an independent verification and validation services contractor to evaluate progress of the ERP project, assess the quality of work products, and conduct independent acceptance testing. These mechanisms provide visibility into the project's business and technical characteristics, as well as establish management control points for assessing project cost, schedule, and quality.

To help manage and control the project, the ERP project manager has prepared a detailed project plan, using Microsoft Project Central, that contains specifics on such tasks as data migration, fit-gap analysis, concept of operations, detailed design, integration, training, testing, implementation and other related activities, which serve the transition of the ERP project from initiation activities to production system operation. The project management control system will provide for tracking schedule performance against project plan milestones. This visibility will help both business and technical managers identify problem areas and take corrective actions when actual results deviate significantly from plans.

I.H.2. Original Baseline

Cost and Schedule Goals: Original Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Analysis Phase*	07/2001	12/2001	180	1,400	Smithsonian
Deploy General Ledger, Accounts Payable, Purchasing modules*	07/2001	10/2002	396	5,780	Smithsonian
Deploy Procurement, Projects, Budgets, Grants, Assets, Billing, and Accounts Receivable modules*	10/2002	10/2003	365	11,996	Smithsonian
Deploy Human Resources, Time and Labor, and Payroll Interface modules	12/2002	04/2004	485	5,280	Smithsonian
Integrate existing Travel Manager System with ERP	12/2002	08/2004	608	257	Smithsonian
Deploy Benefits Administration module	10/2003	04/2005	504	3,224	Smithsonian
Completion date: 04/2005			Total cost estimate at completion: \$27,937**		

*Funding for these milestones is included in development costs for FY 2002–FY 2003.

**Completion estimate is for development only. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

I.H.3. Proposed baseline/current baseline

The Smithsonian did not receive Congressional approval until June 28, 2001. This delayed award of the system integration contract and the beginning of the ERP project. Several activities including the start of integration testing were delayed to complete the upgrade to the new version of *PeopleSoft Financials*. The decision to upgrade was made based on the following: (1) the new release uses an entirely web based client so upgrading simplifies the deployment for phase 1 and subsequent upgrades by eliminating the need to distribute client software; (2) several critical requirements were satisfied by the functionality included in the new release, thus avoiding customization; (3) due to the architectural changes and the new web based user interface, upgrading after production would have required substantial retraining and deployment effort; and (4) deferring the upgrade to phase 2 would have required substantial rework to the three modules deployed in phase 1. The resources required to perform this upgrade to a production system would have significantly impacted the planned activities for phase 2. To accommodate the upgrade activities, portions of the integration testing and system testing activities were performed in parallel. This re-planning of testing activities allows the continuation on the original phase 1 schedule.

The cost of IT operations has increased by \$421,000 annually beginning in FY 2004. This reflects the decision to use contractors in lieu of Federal employees to perform these functions. The Smithsonian has experienced difficulty and long delays in hiring IT staff.

I.H.4. Actual performance and variance from OMB approved baseline

Comparison of OMB-Approved Baseline and Actual Outcome Phase/Segment/Module of a Project									
Description of Milestone	OMB-Approved Baseline					Actual Outcome			
	Schedule			Planned Cost (\$ 000)	Funding Agency	Schedule		% Comp	Actual Cost
	Start Date	End Date	Duration (in days)			Start Date	End Date		
Analysis Phase	7/2001	12/2001	180	1,400	SI	07/01	12/01	100%	1,400
Deploy GL, Accounts Payable, Purchasing modules	7/2001	10/2002	396	5,780	SI	09/01		95%	
Deploy Procurement, Projects, Budgets, Grants, Assets, Billing, and Accounts Receivable modules	10/2002	10/2003	365	11,996	SI				
Deploy Human Resources, Time and Labor, and Payroll Interface modules	12/2002	4/2004	485	5,280	SI				
Integrate existing Travel Manager System with ERP	12/2002	8/2004	608	257	SI				
Deploy Benefits Administration module	10/2003	4/2005	504	3,224	SI				
Completion date: 4/2005					Estimated completion date: 04/2005				
Total cost OMB baseline: \$27,937					Estimate at completion: \$27,937				

Part II: ADDITIONAL BUSINESS CASE CRITERIA FOR INFORMATION TECHNOLOGY**II. A. Enterprise Architecture****II.A.1 Business**

A. Is this project identified in your agency's enterprise architecture? Yes

B. Explain how this project conforms to your departmental (entire agency) enterprise architecture.

The Smithsonian Institution completed a baseline inventory of automated information systems and IT products in March 2001 as part of a companion IT project to establish an enterprise IT architecture and deploy a managed IT infrastructure. Based on an analysis of the IT baseline, the Smithsonian defined a conceptual target IT architecture in July 2001 and published a Technical Reference Model (TRM) in January 2002. The TRM defines a comprehensive set of information technology standards, services, protocols, and products that define the target technical environment for the acquisition, development, and support of Smithsonian application systems, enterprise architecture, and the supporting IT infrastructure. The Technical Reference Model is based on the most recent version of the National Institute of Standards and Technology's Application Portability Profile. The Institution has selected, where appropriate, information technology components that best support an open system environment for operating its application systems. The underlying hardware and software platforms that the ERP system operates on are consistent with the Smithsonian enterprise IT architecture.

C. Identify the Lines of Business and Sub-Functions within the Federal Enterprise Architecture Business Reference Model that will be supported by this initiative.

The ERP will support the Internal Operations and Infrastructure line of business and the sub-functions of Financial Management, Human Resources and Supply Chain Management.

D. Briefly describe how this initiative supports the identified Lines of Business and Sub-Functions of the Federal Business Architecture.

The ERP system will support core financial and human resources management functions such as budget formulation and execution, financial accounting, preparation of financial statements and reports, audit and certification of payment vouchers, payroll and purchasing, as well as activities associated with the recruitment and management of Smithsonian personnel.

E. Was this project approved through the EA Review committee at your agency?

Yes. The ERP project was approved by the Capital Planning Board.

F. What are the major process simplification/reengineering/design projects that are required as part of this initiative? Through the first phase of the ERP project the Smithsonian has standardized and defined business processes for purchasing, general ledger, and accounts payable processing.

G. What are the major organization restructuring, training, and change management projects that are required? There are no major organization restructuring or change management projects. Training is part of the ERP project.

H. What are the Agency lines of business involved in this project?

Financial and Human Resources Management

I. What are the implications for the agency business architecture?

The ERP system will replace 27 financial systems used throughout the Institution and 20 desktop database systems within the Office of Human Resources. In addition, a single ERP system will eliminate redundancy of effort and of data, reduce opportunities for errors, reduce the amount of time and frustration currently devoted to reconciling data between central and unit records, automate thousands of routine and repetitive transactions now performed manually, provide more opportunities for performing value-added work, and create critical linkages for better management of financial and human resources.

II.A.2 Data

A. What types of data will be used in this project?

Financial and human resources management data.

B. Does the data needed for this project already exist at the Federal, State or Local level? If so, what are your plans to gain access to that data?

The data used in the ERP system are internal Smithsonian financial and human resource data. They do not exist at the Federal, State or Local level.

C. Are there legal reasons why the data can't be transferred? If so, what are they and did you address them in the barriers and risk sections above. N/A

D. If this initiative processes spatial data, identify planned investments for spatial data and demonstrate how the agency ensures compliance with the Federal Geographic Data Committee standards required by OMB Circular A-16. N/A

II.A.3 Application and Technology

A. Discuss this initiative/project in relationship to the application and technology layers of the EA. Include a discussion of hardware, applications, infrastructure, etc.

The various *PeopleSoft* and third-party products used by *PeopleSoft* are included in the TRM. Because of the size of the ERP initiative, and the fact that the TRM was being defined in parallel with the ERP effort, the tools and technologies specified in the TRM complement the products and platforms selected for the ERP. This includes the selection of the hardware platform, database, and use of select third-party components such as the web application server planned for the *PeopleSoft* implementation at the Smithsonian.

B. Are all of the hardware, applications, and infrastructure requirements for this project included in the EA Technical Reference Model? Yes. If not, please explain

II.B. Security and Privacy

II.B.1 How is security provided and funded for this project?

The ERP system will maintain critical financial, procurement, budget, and personnel information. Its nature requires a high degree of data integrity. The Smithsonian will protect sensitive financial, contract, and personnel data from unauthorized access and/or disclosure. These data, which are considered

confidential, also require assurance of their integrity when stored in electronic form, as well as security from unauthorized alteration or modification. The Smithsonian will explicitly consider security of all sensitive information throughout the ERP project system life cycle and will document security requirements in a Security Plan. The plan will capture the structured process of planning and implementing adequate, cost-effective security protection for the ERP system. The Chief Financial Officer, with the guidance and assistance of the Chief Information Officer (CIO), will ensure that adequate general controls are in place and that the ERP system and business procedures will process and handle sensitive information and deliver critical services in a manner compliant with all applicable laws and regulations.

Smithsonian staff will access the ERP system through desktop workstations. The ERP system will be controlled with respect to access, authority to modify, and ability to operate it. The ERP system will require users to authenticate their identity through the entry of a user ID and password. The system will allow access only to authorized users based on user profiles. Electronic documents will be authenticated through electronic signatures. For audit purposes, a record of any changes to the original data will create a history record that includes the date of change and the user ID of the person making the change.

A. What is the total dollar amount allocated to security for this project? Security costs are included in the system development costs and not broken out separately.

II.B.2 Does the project meet the following security requirements of the Government Information Security Reform Act, OMB policy, and NIST guidance?

A. Does the project have an up-to-date security plan that meets the requirements of OMB policy and NIST guidance? What is the date of the plan?

The ERP security plan will be complete in October 2002.

B. Has the project undergone an approved certification and accreditation process? No

C. Have the management, operational, and technical security controls been tested for effectiveness? No.

D. Have all system users been appropriately trained in the past year, including rules of behavior and consequences for violating the rules? No. Users will be trained prior to being given access to the system.

E. How has incident-handling capability been incorporated into the system, including intrusion detection, monitoring and audit log reviews? The Smithsonian's Information System Security Officer manages the response to major computer security incidents. Incidents are reported to the Fencer Operation Center. The FY 2004 budget request includes funding to implement an adequate intrusion detection system.

F. Is this system operated by contractors either on-site or at a contractor facility? If yes, does any such contract include specific security requirements required by law and policy? How are contractor security procedures monitored, verified, and validated by the agency? The Smithsonian will use contractors to augment in-house staff to operate the ERP system on-site. Contractors undergo a NAC background check.

II.B.3 How does the agency ensure the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access?

The ERP system is for internal transactions only. It will not promote or permit public access.

II.B.4 How does the agency ensure that the handling of personal information is consistent with relevant government-wide and agency policies?

Security for personal data is restricted by security profiles within the application and by the encryption of the data.

II.C. Government Paperwork Elimination Act (GPEA)

The ERP system supports the electronic government goals of the Government Paperwork Elimination Act (GPEA). The Smithsonian plans to replace cumbersome manual paper processes with re-engineered electronic processes. The Smithsonian currently uses electronic signatures to authenticate travel-related transactions within the *Travel Manager* system and plans to use electronic signatures to authenticate financial and human resource transactions. *Travel Manager* will interface with the ERP system. Since the ERP system supports financial and human resource management internal transactions and will not place a paperwork burden on the public, the GPEA provisions are not applicable.

PART I: CAPITAL ASSET PLAN AND BUSINESS CASE

Agency: Smithsonian Institution

Bureau: (OIA)

Account Title: Salaries and Expenses

Account Identification Code: 33-0100-0

Program Activity:

Name of Project: Managed Information Technology Infrastructure

Unique Project Identifier: 452-00-02-00-01-1004-00

Project Initiation Date: 04/2001

Project Planned Completion Date: 09/2007

 This Project is: Initial Concept____ Planning____ Full Acquisition____ Steady State____
 Mixed Life Cycle X

Project/useful segment is funded:	Incrementally	Fully <u> X </u>
Was this project approved by OMB for previous Year Budget Cycle?	Yes <u> X </u>	No
Did the Executive/Investment Review Committee approve funding for this project this year?	Yes <u> X </u>	No
Did the CFO review the cost goal?	Yes <u> X </u>	No
Did the Procurement Executive review the acquisition strategy?	Yes <u> X </u>	No
Is this investment included in your agency's annual performance plan or Multiple agency annual performance plan?	Yes <u> X </u>	No
Does the project support homeland security goals and objectives, i.e., 1) improve border and transportation security, 2) combat bio-terrorism, 3) enhance first responder programs; 4) improve information sharing to decrease response times for actions and improve the quality of decision making?	Yes	No <u> X </u>
Is this project information technology (see Section 300.4(e) for a definition)?	Yes <u> X </u>	No
<i>For information technology projects only:</i>		
a. Is this project a financial management system (see section 42.2 for a definition)?	Yes	No <u> X </u>
If so, does this project address a FFMIA compliance area?	Yes	No
If yes, which compliance area? N/A		
b. Does this project implement electronic transactions or record keeping that is covered by the Government Paperwork Elimination Act (GPEA)	Yes	No <u> X </u>
c. Was a privacy impact assessment performed for this project?	Yes	No <u> X </u>
d. Was this project reviewed as part of the FY 2002 Government Information Security Reform Act review process?	Yes <u> X </u>	No

If yes, were any weaknesses found? Yes ☒ No

Have the weaknesses been incorporated into the agency's corrective action plans? Yes ☒ No

e. Has this project been identified as a national critical operation or asset by a Project Matrix review or other agency determination? Yes No ☒

e.1 If no, is this an agency mission critical or essential service, system service, system, operation, or asset (such as those documented in the agency's COOP Plan), other than those identified above as national critical infrastructures? Yes ☒ No

PART I: SUMMARY OF SPENDING FOR PROJECT STAGES
(\$ in thousands)

Project Costs	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total
Analysis Phase	373								373
NOC & Help Desk ¹	146	1164	1612	289 ²	150	0	0	0	3361
Network Services ³	302	486	1368	34	356	0	0	0	2546
Appl Svr Consolidn ⁴	0	0	2055	1680	1,720	0	0	0	5455
Desktop ⁵	0	1146	0	659 ⁶	0	0	0	0	1805
Security ⁷	0	50		1085	1268	0	0	0	2403
Acquisition Budgetary Resources:	821	2846	5035	3747	3494	0	0	0	15943
Outlays:	821	2476	4750	3915	3527	454			15943
NOC and Help Desk	0	0	1155	2101	2116	2146	2146	2146	11810
Network Services	0	0	56	0	314	512	512	512	1906
Appl Svr Consolidn	0	0	0	436	472	2160	2160	2160	7388
Desktop	375	0	0	4065	5205	4065	4065	5205	22980
Security	0	0	0	0	507	781	931	1077	3296
Maintenance Budgetary Resources:	375	0	1211	6602	8614	9664	9814	11100	47380
Outlays:	375	0	1054	5900	8352	9528	9794	10933	45936
Total Budgetary Resources:	1196	2846	6246	10349	12108	9664	9814	11100	63323
Outlays:	1196	2476	5804	9815	11879	9982	9794	10933	61879

¹ Implementation of a network operations center and a consolidated Help Desk

² Desktop services contractors to support opening of the National Museum of the American Indian (NMAI) on the Mall.

³ Upgrade of directory, email, and network operating systems and consolidation and periodic replacement of network, directory, and email servers.

⁴ Consolidation and periodic replacement of application servers.

⁵ Institution-wide license for office automation software and periodic replacement (three-year life cycle) of desktop workstations beginning in FY 2004.

⁶ Desktop workstations, laptop computers, scanners, and printers to support opening of the NMAI Mall Museum.

⁷ Hardware, software and contractor services to implement, operate and maintain firewall (zones) and Intrusion Detection Services.

I.A. Project Description

The Smithsonian has long been served by an information technology (IT) infrastructure composed of incompatible commercial hardware and software systems operated by the central information technology services organization and each Smithsonian unit. This IT infrastructure is costly to operate, hard to manage and maintain, difficult to infuse with new technology, and has parts that are becoming technologically obsolete. The Smithsonian plans to standardize and modernize its IT infrastructure from the local area network (LAN) to the desktop incrementally through FY 2005. In FY 2002, the Institution upgraded the network operating system, directory service, and e-mail to currently supported versions, co-located and consolidated network servers, implemented a central Help Desk supported by automated tools, and acquired site software licenses for *Microsoft Windows 2000* and *Microsoft Office Professional* for the desktop support. The Smithsonian will focus on implementing a network operations center, co-locating and consolidating network and application servers, centralizing network management, implementing firewall zones and intrusion detection services. The institution plans to replace desktop workstations, network and application servers and other IT infrastructure components on an industry standard periodic replacement cycle. The project also includes IT infrastructure components for the opening of the National Museum of the American Indian in FY 2004. The Smithsonian's Capital Planning Board approved the Managed IT Infrastructure project on June 19, 2001.

I.B. Justification

1. How does this investment support your agency's mission and strategic objectives?

The Managed IT Infrastructure project supports the Smithsonian's strategic goal of modernizing its management systems and bringing each to a level of quality and sophistication appropriate to an organization of the size and complexity of the Institution. Specifically, it supports an Institutional objective to bring its information technology systems and functions up to date.

As the Smithsonian builds its framework for the 21st century, it must apply an enterprise approach to managing the IT infrastructure. The Smithsonian has long been served by an IT infrastructure composed of incompatible commercial hardware and software systems operated by the central information technology services organization and each Smithsonian unit. The Smithsonian's IT infrastructure includes 80 commercial and 73 custom developed application systems operating on a variety of hardware and software environments from desktop workstations to mainframe computer systems. There were nearly 80 loosely coupled local area networks, 149 servers running multiple versions of Novell Netware. There are 82 servers running multiple versions of Windows, and 20 servers executing miscellaneous operating systems. The e-mail system is primarily Novell GroupWise, but three other e-mail systems exist to serve 6,000 end-users. There are 462 unique commercial software infrastructure products in use; 20 are different database management system products and 47 are different software engineering tools in use. This IT infrastructure is costly to operate, hard to manage and maintain, difficult to infuse with new technology, and has parts that are becoming technologically obsolete.

This situation has occurred, in large part, because supporting IT technology infrastructure components have been acquired by each operating unit and managed on a piecemeal basis as a set of distinct application systems, each with its own dedicated operations and IT support organizations throughout the Smithsonian. The current IT infrastructure limits flexibility, adds cost, and complicates efforts to provide quality IT services, backup and recovery, and adequate security.

A key finding of the Inspector General's July 2002 audit of the Smithsonian's security program⁸ stated

"...the ...program is under diverse, duplicative, and decentralized control ... Information security functions are performed independently and without consideration of the consequences of actions on other parts of the Smithsonian's security program, network, data, and databases. This creates multiple opportunities for system failure at many and varied levels. The Smithsonian could suffer significant loss or destruction of data, embarrassment, and legal responsibility from unauthorized or improper release or disclosure of sensitive information, such as donor credit card numbers, personnel data, and other information covered by the Privacy Act and consumer protection laws."

The proposed enterprise Smithsonian Security infrastructure, as defined in the Security Infrastructure High Level Architecture Design, was reviewed by the IG during its independent audit of the Smithsonian Information Security Program, was specifically recommended as a key element in addressing major security deficiencies. The security infrastructure approach is consistent with and needed to comply with E-Gov Enterprise Architecture Guidance⁹. To address these issues as well as future public access requirements, the current IT infrastructure must be more robust, reliable, and secure.

The Smithsonian must invest now to modernize its IT infrastructure incrementally through FY 2005. This four-year migration period will minimize the risk of disruption to the Smithsonian end-user. Further delay in modernizing the IT infrastructure will only exacerbate an already serious problem as the Smithsonian is becoming increasingly dependent on information technology to perform its day-to-day operations.

2. How does it support the strategic goals from the President's Management Agenda?

The Managed IT Infrastructure project supports the President's Management Agenda E-Government goal to improve effectiveness and efficiency of internal operations and infrastructure.

3. Are there any alternative sources in the public or private sectors that could perform this function?

Cross-servicing or outsourcing the entire IT infrastructure management is not considered a viable option at this time.

4. If so, explain why your agency did not select one of these alternatives.

The Smithsonian is considering cross-servicing and/or outsourcing the production processing of the data center to coincide with the renovation of the Arts & Industries Building now scheduled to begin in FY 2005. The Smithsonian has held preliminary discussions with two federal agencies and two managed service providers (MSPs) to consider cross servicing or outsourcing the production processing of the ERP system and ultimately the entire data center. Factors that will be considered are the cross-servicing agency's methods for prioritizing service and ability to keep current with information technology industry best practices, service level agreement, security, and cost. Factors that will be considered for outsourcing data center operations are the financial stability of the MSP, service level agreement, security, and cost.

⁸ Independent Evaluation of the Smithsonian Institution's Information Security Program, July 31, 2002, prepared for the Inspector General by Cotton & Company LLP Auditors.

⁹ E-Gov Enterprise Architecture Guidance (Common Reference Model) Draft—Version 2.0 FEA Working Group, July 25, 2002.

5. Who are the customers for this project?

Customers for the Managed IT Infrastructure project are all users of the Institution's computers and data networks – employees, volunteers, visiting scholars and scientists, interns, and contractors.

6. Who are the stakeholders of this project?

Key stakeholders for the Managed IT Infrastructure project include the Chief Information Officer and all Directors of Smithsonian museums, research centers, and units.

7. If this is a multi-agency initiative, identify the agencies and organizations affected by this initiative.
N/A

8. How will this investment reduce costs or improve efficiencies?

As the Smithsonian migrates to a managed information technology infrastructure, it will be better positioned to add new products or infrastructure components, to replace existing ones as new technologies emerge, and leverage the IT infrastructure to better serve all Smithsonian units. A defined information technology architecture supported by a managed information technology infrastructure will allow the Smithsonian to:

- Improve customer service through product standardization. By standardizing LAN and desktop workstation operating systems and implementing a software distribution system, a centralized Help Desk will be better able to resolve problems. This greatly reduces user downtime, as well as the cost of on-site visits to fix software problems.
- Improve security of the IT infrastructure and automated systems. The Smithsonian is becoming increasingly dependent on information technology to perform day-to-day operations and is relying on the Internet to help disseminate information and conduct limited electronic commerce. It is imperative that the Smithsonian adequately safeguard its automated information systems and the supporting IT infrastructure, provide online backup and recovery and create a trusted environment in which to conduct electronic commerce.
- Reduce information technology personnel training costs by centrally managing and standardizing IT software products. There will be fewer unique products, thus reducing training required for Smithsonian IT staff and support contractors. Training costs include tuition, employee salary while attending training, and lost productivity associated with the time to gain proficiency on a specific IT product.
- Improve management of the Smithsonian's distributed computing environment by facilitating help desk management, problem management, and system and network management.
- Reduce life cycle hardware and software maintenance costs through better management of the life cycle of hardware and software.
- Ensure competitive pricing and longer/more comprehensive warranties by leveraging bulk purchasing of assets, warranties, licensing fees, technical training, and maintenance.
- Increase functionality through consolidation, thus reducing the number of items that require maintenance.

- By standardizing IT components, allow the Smithsonian to pursue competitive maintenance agreements.
- Achieve economies through site software licenses and consolidated hardware procurements. The bundling of commercial software requirements across the Institution will provide the leverage to negotiate more favorable licensing terms, providing both reduced costs and increased flexibility. Consolidating hardware requirements and conducting competition for bulk purchases of IT infrastructure components, especially among resellers who apply discounts to consolidated orders, can significantly reduce costs.

In addition, this approach provides the technical benefits of improved software and hardware integration and interoperability, which are critical to achieving overall system reliability as computer technology becomes more complex to manage.

9. List all other assets that interface with this asset.

The Managed IT Infrastructure project is a major IT infrastructure component. All business applications will rely on it.

Have these assets been reengineered as part of this project? Yes No X

I.C. Performance Goals and Measures (All Assets)

The Smithsonian will assess the results of the Managed IT Infrastructure project primarily through establishing a service commitment statement, service level agreements, and customer satisfaction surveys. Key performance measures include:

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY 2001)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
2005–2008	Management Excellence	1. SI units have 91 staff performing network operations. 2. System availability baseline data not available	1. Increase unit IT workforce productivity by 60%. 2. Network servers will maintain system availability of 99.9% during normal business hours.		1. SI can re-deploy 72 in-house staff to perform other functions. 2. SI will maintain a high level of availability for network servers.	

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY 2001)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
		3. Network server restoration baseline data not available. Best effort approach to service	3. 95% of network server outages will be restored to service within 2 hours during normal business hours.		3. Network servers will be restored to service quickly.	
		4. SI operated 149 network servers.	4. Reduce number of network servers by 54%.		4. SI will operate 80 network services and provide full redundancy.	

I.D. Program management

1. Is there a program manager? Yes. Michael Press has been assigned as the Managed IT Infrastructure project manager.
2. Is there a contracting officer assigned to the project? If so, what is his/her name? Yes, Lynn Spurgeon has been assigned as the contracting officer.
3. Is there an Integrated Project Team? Yes
- 3.A. If so, list the skill set represented.

Yes. The Institution established a project team led by a project manager from the Office of the Chief Information Officer. Work groups are established for individual project stages (e.g. upgrade of network operating system) and include IT staff of Smithsonian units (e.g., National Museum of Natural History) and contractors skilled in network engineering, network operations, and desktop services. The project team follows a disciplined life cycle management process defined in Smithsonian Directive 920 and tailored for IT infrastructure components.

3. Is there a sponsor/owner? Yes, the Chief Information Officer

I.E. Alternatives Analysis

1. The Smithsonian prepared an economic analysis that compares maintaining the current decentralized IT infrastructure as it is done today with a managed IT infrastructure approach. Two variations of alternative 2—managed IT infrastructure—were also considered, but not included in the cost analysis. The alternative 2 variations included: (1) migrate to *Microsoft Windows 2000* and (2) maintain the *Novell* network and migrate to *Microsoft* messaging products. The managed IT infrastructure will be

incrementally implemented over a four-year period through FY 2005. The following alternatives were considered in this analysis:

Alternative	Description
Alternative 1	<i>Maintain the Status Quo:</i> Alternative 1 continues the support of the existing IT infrastructure in the decentralized manner that is done today. This means that the variety of network servers, operating systems, and infrastructure platforms would remain in place unchanged. IT infrastructure support will be performed throughout the Smithsonian in a varied fashion based on each individual business unit's ability to staff and maintain these services. It does not provide for necessary shared infrastructure investments (<i>e.g.</i> , help desk, network operations center, and technology refreshment) nor does it standardize the technical platforms in the environment through any conscious effort. This alternative does not allow the Smithsonian to comply with information security requirements; specifically the current security infrastructure does not include adequate firewall security, separate internal and external zones, or intrusion detection.
Alternative 2	<i>Managed IT Infrastructure:</i> This alternative standardizes the Smithsonian IT infrastructure on supported versions of the most widely used technology platforms at the Smithsonian today (<i>Novell NOS, NDS, and GroupWise</i>) in the near term and targets next generation network, directory, and email platforms for pilot programs in FY 2004. The alternative also includes implementing a network operations center and a consolidated Help Desk, co-locating and consolidating network and application servers, centralizing network management, replacing desktop workstations and network and application servers on an industry-standard periodic replacement cycle, and security infrastructure.

2. Summarize the results of your life cycle cost analysis performed for each investment and the underlying assumptions.

The cost to operate and maintain the Institution's current decentralized IT infrastructure is \$60.7 million through FY 2005. The cost to implement and operate the managed IT infrastructure is \$27.7 million through FY 2005. The Institution designed the IT security infrastructure after the economic analysis was completed. The security infrastructure adds \$2.9 million to the managed IT infrastructure alternative, thus, increasing life cycle costs to \$29.6 million through FY 2005. An equivalent level of security safeguards for the decentralized approach would cost substantially more. Key *Gartner Group* assumptions were:

- Regardless of the technology choices made, there is a compelling business reason to evolve the management of the IT infrastructure into a shared services environment.
- Determining the balance of central versus decentralized IT services is a Smithsonian governance decision that should be based on relevant industry best practice and the Smithsonian "business" model.
- In order to support a well managed IT infrastructure, the centralized IT organization must be provided with the appropriate resources to meet quality of service objectives of Smithsonian end-users.

- In order to manage IT infrastructure services effectively, the Smithsonian must invest in a central Help Desk, a Network Operations Center, tools, and process development to support these investments.
- The network servers are targeted for a forty percent (40%) reduction over the planning period through consolidation and co-location. This is a reasonable target for network server reduction based on the *Gartner* research database.
- The application servers are targeted for a fifteen percent (15%) reduction over the planning period through consolidation and co-location. This is a reasonable target for application server reduction based on the *Gartner* research database.
- *Gartner* research shows that the average technology replacement rate for the desktop environment is approximately three years (33% per year), which includes Intel-based servers.
- *Gartner* research shows that the average technology replacement rate for mid-range UNIX servers is approximately every six years (15% per year).

3. Which alternative was chosen and why? Define the Return on Investment (ROI).

The Institution selected alternative 2—Managed IT Infrastructure because it minimizes the cost outlay and maximizes the returned value to the Smithsonian by taking advantage of the installed technology base and existing maintenance contracts. It standardizes the IT infrastructure platforms to the greatest extent practical on the latest Novell products, but allows the Smithsonian to keep its heterogeneous environment intact and integrated into the shared infrastructure. This alternative includes investing in key support components (e.g., a centralized help desk, network operations center, desktop office automation software, and technology refreshment for hardware/software) that are required to manage the IT infrastructure in an industry best practice fashion. Additionally, this alternative works to reduce and co-locate the network and application servers as the managed IT infrastructure is established and begins the periodic replacement of desktop workstations in FY 2004 based on an industry-standard 3-year life cycle. This alternative includes the implementation of a security infrastructure that is integrated with the network and server infrastructure.

3. A. Are there any quantitative benefits that will be achieved through this investment (e.g., systems savings, cost avoidance, stakeholder benefits, etc)?

The Smithsonian prepared an economic analysis that compared the two alternatives over a four-year systems life. The economic analysis included a sensitivity analysis that considered two scenarios that included cost overruns of 10 percent and 20 percent for installation services reductions of productivity savings from 60 percent to 30 percent in Smithsonian units. Equipment prices are known and predictable. The “best case” scenario projects \$31.7 million in undiscounted benefits including cost avoidance amounting to \$14.2 million associated with consolidation of network and application servers. The Institution expects IT workforce productivity increases of 60 percent in the in Smithsonian Institution units. Smithsonian unit IT staff would be redirected to focus on core unit business and not IT infrastructure. This is based on the existing number of IT staff and support contractors in Smithsonian units.

Under the “best case” or “expected outcome” scenario, the economic benefits generated by the managed IT infrastructure project during the 4-year economic life outweigh the investment costs. The Institution has not updated the economic analysis to reflect the redesigned IT security infrastructure. The following chart depicts the “best case” scenario. \$31.7 million in undiscounted benefits including cost avoidance amounting to \$14.2 million associated with consolidation of network and application servers.

Costs & Expected Benefits Under “Best Case” Scenario for Managed IT Infrastructure
(\$ in thousands)

	Expected Yearly Cost Increase (incl. Implementation & Ongoing Costs)	Expected Yearly Benefit Cost Avoid. for Replacing HW/SW.	Total Yearly Benefit	Disc. Factors for 7%	PV of Costs (Col 2 x Col 4)	PV of Benefits (Col 3c x Col 4)	
Fiscal Year		Productivity Increase					
(1)	(2)	(3 a)	(3 b)	(3 c)	(4)	(5)	(6)
FY2002	\$2,846	\$0	\$7,085	\$7,085	0.9667	\$2,751	\$6,849
FY2003	\$6,232	\$3,510	\$4,880	\$8,391	0.9035	\$5,631	\$7,581
FY2004	\$8,316	\$7,021	\$1,465	\$8,486	0.8444	\$7,022	\$7,166
FY2005	\$10,333	\$7,021	\$775	\$7,796	0.7891	\$8,154	\$6,152
Total	\$27,727	\$17,551	\$14,206	\$31,758		\$23,557	\$27,748

The “worst case” scenario projects IT workforce productivity increases of 30 percent in the Smithsonian units and assumes a 20 percent cost overrun. Under the “worst case” scenario, the Smithsonian will realize \$8.7 million through productivity gains and save an additional \$14.2 million through consolidation of network and application servers. The Institution has not updated the economic analysis to reflect the redesigned IT security infrastructure. The following chart depicts the “worst case” scenario.

Costs & Expected Benefits Under “Worst Case” Scenario for Managed IT Infrastructure
(Costs and Benefits with a 30% Benefit and 20% Cost Overrun)
(\$ in thousands)

Fiscal Year	Expected Yearly Cost Increase (incl. Implementation & Ongoing Costs)	Expected Yearly Benefit Cost			Disc. Factors for 7%	PV of Costs (Col 2 x Col 4)	PV of Benefits (Col 3c x Col 4)
	Productivity Increase	Avoid. for Replacing HW/SW.	Total Yearly Benefit				
(1)	(2)	(3 a)	(3 b)	(3 c)	(4)	(5)	(6)
FY2002	\$2,846	\$0	\$7,085	\$7,085	0.9667	\$2,751	\$6,849
FY2003	\$6,232	\$1,755	\$4,880	\$6,636	0.9035	\$5,631	\$5,995
FY2004	\$8,736	\$3,510	\$1,465	\$4,976	0.8444	\$7,376	\$4,201
FY2005	\$10,693	\$3,510	\$775	\$4,285	0.7891	\$8,438	\$3,382
Total	\$28,507	\$8,776	\$14,206	\$22,982		\$24,196	\$20,428

The following chart presents the costs for the *Maintaining the Status Quo* alternative in current and discounted dollars. The costs presented below include the cost to operate and maintain the infrastructure as it is done today. With this option there is no expected IT workforce productivity increase or cost avoidance from consolidating the network and infrastructure management. The Institution has not estimated the cost to adequately safeguard the decentralized IT infrastructure or updated the economic analysis to reflect adequate security safeguards.

Costs & Expected Benefits for Maintaining the Status Quo
(\$ in thousands)

Fiscal Year	Expected Yearly Cost Increase (incl. Implementation & Ongoing Costs)	Expected Yearly Benefit Productivity Increase	Expected Yearly Benefit Cost Avoid. for Replacing HW/SW.	Total Yearly Benefit	Disc. Factors for 7%	PV of Costs (Col 2 x Col 4)	PV of Benefits (Col 3c x Col 4)
(1)	(2)	(3 a)	(3 b)	(3 c)	(4)	(5)	(6)
FY2002	\$8,439	\$0	\$0	\$0	0.9667	\$8,158	\$0
FY2003	\$13,150	\$0	\$0	\$0	0.9035	\$11,881	\$0
FY2004	\$19,000	\$0	\$0	\$0	0.8444	\$16,044	\$0
FY2005	\$20,140	\$0	\$0	\$0	0.7891	\$15,893	\$0
Total	\$60,730	\$0	\$0	\$0		\$51,976	\$0

The economic benefits generated by a managed IT infrastructure over the period FY 2002–FY 2005 outweigh its investment costs. The decision to implement a more robust and stable computing infrastructure is cost effective when compared to the alternative of maintaining the current infrastructure in a decentralized approach. As evidenced by this economic analysis, the managed IT infrastructure project is cost justified over the four-year time horizon. The personnel and productivity savings generated by the managed IT infrastructure provides an expected net present value of \$4,190,000 when discounted at 7% (OMB Circular A-94 discount rate) in an analysis projected over the period FY 2002–FY 2005. Cost aside, a more consistent, reliable and stable infrastructure eliminates redundancy of effort within the Smithsonian units and provides a support model for managing the IT infrastructure that is in line with industry best practices. A properly managed IT infrastructure provides the technology foundation that is necessary to modernize the Smithsonian's computing infrastructure and enable the strategic vision of the enterprise.

4. What was the date of your cost benefit analysis? August 2001.

I.F. Risk Inventory and Assessment

There are project-related risks that must be managed before they become problems. Because the managed IT infrastructure project will rely on proven commercial hardware and software products, excessive time delays and cost overruns are minimized. The following major project-related risks can adversely affect project cost and schedule:

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
Aug 2001	Organizational and Change Management	Units will not buy in to centralized network management, server consolidation and common enterprise security infrastructure.	Medium	1. Units are part of project team. 2. Senior IT managers from throughout the Institution will participate in detailed planning. 3. Improve visibility and confidence through an open TRB to review deliverables & communicate status at major milestones.	1. Project plan has been reviewed by ITMC. 2. Conducted one TRB meeting. 3. Reduced number of network servers from 149 to 93 and consolidated network services of 19 SI units. 4. Published Service Commitments in Customer Service Handbook.
	Business				
Nov 2000	Data/Info	Baseline IT infrastructure information is not available.	Low	Conduct a baseline assessment of IT infrastructure components.	SI completed a baseline assessment in Mar 2001 and published TRM in Jan 2001.

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
March 2000	Strategic	SI will not have a modern IT infrastructure.	Low	The MITI project meets one of the Secretary's strategic goals: to modernize its systems.	Network operating system, directory service, and email upgraded; network servers co-located and consolidated; central Help Desk initiated; and site licenses for desktop software acquired.
July 2002	Security	The IT infrastructure will not have adequate intrusion detection and firewalls in place.	Medium	SI plans to implement an adequate intrusion detection system and redesigned firewall in FY 2004.	Number of services passing through existing firewall has been reduced.
July 2002	Privacy	The MITI project will not provide adequate safeguards to protect Privacy Act data.	Low.	The system will apply and manage security measures from an enterprise perspective.	Security policies requiring safeguards for Privacy Act data have been established.
Sep 2001	Project Resources	The MITI project will not be adequately funded.	Medium	Modernizing the IT infrastructure is a priority. Implementation period or replacement cycles will be stretched to fit available funding.	This project has been fully funded to date.

1. What is the date of your risk management plan? The Economic Analysis identifies project risks—August 2001.

I.G. Acquisition strategy

The Smithsonian using existing government contracts to acquire and implement commercially available hardware and software products to modernize the telecommunications system.

1. Will you use a single contract or several contracts to accomplish this project?

The Smithsonian is using multiple contracts to support the MITI project.

- 1.A. If multiple contracts are planned, explain how they are related to each other, and how each supports the project performance goals.

The Smithsonian plans to continue to use full and open competition and acquisition through interagency agreements, small businesses, GSA schedules, and other sources to acquire and implement commercially available hardware and software products. The Smithsonian has relied on *Gartner Group* and *Ciber* to complete the analysis phase and *Knowocean* to develop the security architecture. The Institution has awarded an IT services contract to *RSIS* through the Department of Transportation's *ITOP* government-wide contract to acquire support services. The Institution also has contracts in place for desktop workstations and office automation software and Intel-based network and application servers. The Smithsonian awarded a competitive contract to *Applied Technologies, Inc.* for Help Desk software and implementation services.

1. What type(s) of contract(s) will you use?

The *Gartner Group*, *Ciber*, *RSIS*, *Dell*, *Compaq*, and *Applied Technologies, Inc.* are all fixed price.

- 2.A. For cost reimbursement contracts, define risk not sufficiently covered by the risk mitigation plan to require this type of contract. N/A

3. Will you use financial incentives to motivate contractor performance? No.

4. Will you use competition to select suppliers? Yes, IT services are provided via government-wide contract. This uses competition among pre-qualified companies. Other contracts were competed.

5. Will you use commercially available or COTS products, or custom-designed products? The Smithsonian is using commercially available products.

6. What is the date of your acquisition plan? The Institution did not prepare a formal acquisition plan.

7. How will you ensure Section 508 compliance?

The desktop equipment is section 508 compliant.

I.H. Project and Funding Plan

The Smithsonian is not able to implement an earned value management system until FY 2005 after deployment of the Projects and Time & Labor modules of its Enterprise Resource Planning system.

I.H.1. Description of Performance Based Management System

To help assure that quality of the technical work products is acceptable, the Smithsonian has established the System Architecture and Product Assurance office to administer programs for system architecture, quality assurance, and independent testing of application software and information technology infrastructure. The primary purposes of the technical reviews conducted by the Product Assurance office are to improve the quality of intermediate work products, correct defects as early in the life cycle as possible, and prevent problems over the long run. These mechanisms provide visibility into the information technology project's business and technical characteristics, as well as establish management control points for assessing project cost, schedule, and quality.

To help manage and control the project, the Smithsonian uses *Microsoft Project Central* as its project management control system. The project management control system will provide for tracking schedule performance against project plan milestones.

To help assure that requirements are being met, the Smithsonian has established a Technical Review Board. The Board, chaired by the Director of System Architecture and Product Assurance and consisting of senior IT managers from across the Institution, evaluates the progress of each major IT project and assesses the quality of project deliverables. Its primary objectives are

- improving the overall level of project success, system quality, and productivity
- ensuring that risk is reduced to an acceptable level by completing assessments at key project milestones.

The Technical Review Board ensures that the life cycle management methodology, which specifies standards for the initiation, concept and requirements definition, detailed analysis and design, development and testing, deployment, and operations phases, is followed in a coordinated, common sense manner for all projects. The Board also monitors acceptance testing, product assurance, and configuration management functions for hardware, software, and documentation.

I.H.2. Original Baseline

Cost and Schedule Goals: Original Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Analysis	11/2000	08/2001	304	373	Smithsonian
NOC and Help Desk	07/2001	09/2005	1,521	3,072	Smithsonian
Network Services	03/2001	09/2003	913	2,596	Smithsonian
Application Server Consolidation	10/2001	09/2005	1,429	5,561	Smithsonian
Desktop	10/2001	09/2004	1,064	1,146	Smithsonian
Completion date: 09/2005			Total cost estimate at completion: 12,748*		

*Estimate for completion is for development only. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

I.H.3. Proposed baseline/current baseline

Cost and Schedule Goals: Proposed Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Analysis	11/2000	08/2001	304	373	Smithsonian
NOC and Help Desk	07/2001	09/2005	1,521	3,361	Smithsonian
Network Services	03/2001	09/2003	913	2,546	Smithsonian
Application Server Consolidation	10/2001	09/2005	1,429	5,455	Smithsonian
Desktop	10/2001	09/2004	1,064	1,805	Smithsonian
Security	01/2002	09/2005	1,337	2,403	Smithsonian
Completion date: 09/2005			Total cost estimate at completion: 15,943*		

* Estimate for completion is for development only. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

There has been no change in the project schedule completion estimate. However, to protect the IT infrastructure from hacking and prevent potential loss of data or disruption of services, the Institution plans to establish a network security infrastructure that will support its applications to distribute digital information to the public, researchers, and other customers or partners and minimize the associated IT security risk. This adds about \$1 million per year to the Managed IT Infrastructure project. The Institution has included the cost to support the desktop infrastructure for the opening of the National Museum of the American Indian on the Mall, which adds \$948,000 to the Managed IT Infrastructure project FY 2004 only.

I.H.4. Actual performance and variance from OMB approved baseline

Comparison of OMB-Approved Baseline and Actual Outcome Phase/Segment/Module of a Project									
Description of Milestone	OMB-Approved Baseline					Actual Outcome			
	Schedule			Planned Cost (\$ 000)	Funding Agency	Schedule		Percent Complete	Actual Cost
	Start Date	End Date	Duration (in days)			Start Date	End Date		
Analysis Phase	11/2000	08/2001	304	373	Smithsonian	11/2000	08/2001	100%	373
NOC and Help Desk	07/2001	09/2005	1,521	3,072	Smithsonian	07/2001		40%	
Network Services	01/2003	09/2003	913	2,596	Smithsonian	01/2003		34%	
Application Server Consolidation	12/2001	09/2005	1,429	5,561	Smithsonian	12/2001		2%	
Desktop	10/2001	09/2004	1,064	1,146	Smithsonian	02/2002		64%	
Security					Smithsonian	01/2002		2%	
Completion date: 09/2005					Estimated completion date: 9/2005				
Total cost: OMB approved baseline \$12,748					Estimate at completion: \$15,943				

Part II: ADDITIONAL BUSINESS CASE CRITERIA FOR INFORMATION TECHNOLOGY**II. A. Enterprise Architecture****II.A.1 Business**

A. Is this project identified in your agency's enterprise architecture? Yes

B. Explain how this project conforms to your departmental (entire agency) enterprise architecture.

Work conducted through this project helped establish an IT architecture and managed IT infrastructure. The Smithsonian Institution completed a baseline inventory of automated information systems and IT products in March 2001 to establish an enterprise IT architecture and implement a managed IT infrastructure. Based on an analysis of the IT baseline, the Smithsonian defined a conceptual target IT architecture in July 2001 and published a Technical Reference Model (TRM) in January 2002. The model identifies a comprehensive set of information technology standards, services, protocols, and products that define the target technical environment for the acquisition, development, and support of Smithsonian automated information systems. The Technical Reference Model is based on the most recent version of the National Institute of Standards and Technology's Application Portability Profile. The Institution has selected, where appropriate, information technology components that best support an open system environment. The Smithsonian has instituted an iterative IT architecture planning process that will help the Smithsonian modernize its IT infrastructure and establish an enterprise IT architecture.

C. Identify the Lines of Business and Sub-Functions within the Federal Enterprise Architecture Business Reference Model that will be supported by this initiative.

The Managed IT Infrastructure project will support the Internal Operations and Infrastructure line of business.

D. Briefly describe how this initiative supports the identified Lines of Business and Sub-Functions of the Federal Business Architecture.

The Managed IT Infrastructure project will provide network, help desk, and desktop hardware, software, and services for all Smithsonian units.

E. Was this project approved through the EA Review committee at your agency?

Yes. The Managed IT Infrastructure project was approved by the Capital Planning Board on June 21, 2001.

F. What are the major process simplification/reengineering/design projects that are required as part of this initiative? None required.

G. What are the major organization restructuring, training, and change management projects that are required?

There are no major organization restructuring or change management projects. Training of IT staff is part of the project.

H. What are the Agency lines of business involved in this project?

Information Technology Management

The MITI project will improve customer service through centralizing network management and standardizing network and desktop workstation operating systems and implementing a Help Desk. The project will improve management of the Smithsonian's distributed computing environment by facilitating problem management, and system and network management.

A. What types of data will be used in this project? IT performance management, personnel, and facilities data.

The data used in the Managed IT Infrastructure project is internal Smithsonian data. It does not exist at the Federal, State or Local level.

D. If this initiative processes spatial data, identify planned investments for spatial data and demonstrate how the agency ensures compliance with the Federal Geographic Data Committee standards required by OMB Circular A-16.

Not applicable.

A. Discuss this initiative/project in relationship to the application and technology layers of the EA. Include a discussion of hardware, applications, infrastructure, etc.

B. Are all of the hardware, applications, and infrastructure requirements for this project included in the EA Technical Reference Model? Yes ☐ If not, please explain:

Sensitive financial, procurement, budget, and personnel information will be transmitted over the network. This data is considered confidential. A major benefit of the Managed IT Infrastructure project is to improve security as security measures can be applied and managed from an enterprise perspective. The Smithsonian is becoming increasingly dependent on information technology to perform day-to-day operations and is relying on the Internet to help disseminate information and conduct limited electronic commerce. Increasing dependence on information technology coupled with increasing reliance on the Internet makes it imperative that the Smithsonian adequately safeguard its automated information systems and the supporting IT infrastructure, provide online backup and recovery and create a trusted

environment in which to conduct electronic commerce. The Smithsonian will explicitly consider security throughout the Managed IT Infrastructure project life cycle and will document security requirements in a *Security Plan*. The plan will **Error! Bookmark not defined.** capture the structured process of planning and implementing adequate, cost-effective security protection for the IT infrastructure. Implementing the security infrastructure consistent with Federal Enterprise Architecture guidance is a phase of this project.

A. What is the total dollar amount allocated to security for this project? The Institution is requesting \$5,649,000 through FY 2008 to implement and operate the security infrastructure.

II.B.2 Does the project meet the following security requirements of the Government Information Security Reform Act, OMB policy, and NIST guidance?

A. Does the project have an up-to-date security plan that meets the requirements of OMB policy and NIST guidance? What is the date of the plan?

The Managed IT Infrastructure project security plan will be completed in April 2003.

B. Has the project undergone an approved certification and accreditation process? No

C. Have the management, operational, and technical security controls been tested for effectiveness? No

D. Have all system users been appropriately trained in the past year, including rules of behavior and consequences for violating the rules? No. The Institution published Smithsonian Directive 931 *Use of Computers and Networks* on August 5, 2002. The Directive prescribes rules of employee behavior and identifies potential consequences. The Institution will implement an on-line computer awareness tutorial in FY 2003 and require employees to take the tutorial annually.

E. How has incident-handling capability been incorporated into the system, including intrusion detection, monitoring and audit log reviews? The Smithsonian's Information System Security Officer manages the response to major computer security incidents. Major incidents are reported to the FedCIRC Operation Center. The FY 2004 budget request includes funding to implement an adequate intrusion detection system.

F. Is this system operated by contractors either on-site or at a contractor facility? If yes, does any such contract include specific security requirements required by law and policy? How are contractor security procedures monitored, verified, and validated by the agency? The Smithsonian uses contractors to augment in-house staff to operate the system on-site. Contractors undergo a NAC background check.

II.B.3 How does the agency ensure the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access?

The Smithsonian has designed a security infrastructure approach consistent with E-Gov Enterprise Architecture Guidance that will be implemented in FY 2004 and FY 2005 through this project.

II.B.4 How does the agency ensure that the handling of personal information is consistent with relevant government-wide and agency policies?

Security for personal data is restricted by security profiles.

II.C. Government Paperwork Elimination Act (GPEA)

The Managed IT Infrastructure project supports the electronic government goals of the Government Paperwork Elimination Act (GPEA) by putting in place a reliable and secure IT infrastructure that will enable the Institution to more effectively serve the public electronically. Since the project primarily supports internal operations and will not place a paperwork burden on the public, the GPEA provisions are not applicable.

PART I: CAPITAL ASSET PLAN AND BUSINESS CASE

Agency: Smithsonian Institution

Bureau: (OIA)

Account Title: Salaries and Expenses

Account Identification Code: 33-0100-0

Program Activity:

Name of Project: Telecommunications System Modernization

Unique Project Identifier: 452-00-02-00-01-1003-00

Project Initiation Date: 04/2001

Project Planned Completion Date: 09/2007

This Project is: Initial Concept____ Planning____ Full Acquisition X Steady State____
 Mixed Life Cycle____

Project/useful segment is funded:	Incrementally	Fully <u>X</u>
Was this project approved by OMB for previous Year Budget Cycle?	Yes	No <u>X</u>
Did the Executive/Investment Review Committee approve funding for this project this year?	Yes <u>X</u>	No
Did the CFO review the cost goal?	Yes <u>X</u>	No
Did the Procurement Executive review the acquisition strategy?	Yes <u>X</u>	No
Is this investment included in your agency's annual performance plan or Multiple agency annual performance plan?	Yes <u>X</u>	No
Does the project support homeland security goals and objectives, i.e., 1) improve border and transportation security, 2) combat bio-terrorism, 3) enhance first responder programs; 4) improve information sharing to decrease response times for actions and improve the quality of decision making?	Yes	No <u>X</u>
Is this project information technology (see Section 300.4(e) for a definition)?	Yes <u>X</u>	No
<i>For information technology projects only:</i>		
a. Is this project a financial management system (see section 42.2 for a definition)?	Yes	No <u>X</u>
If so, does this project address a FFMIA compliance area?	Yes	No
If yes, which compliance area? N/A		
b. Does this project implement electronic transactions or record keeping that is covered by the Government Paperwork Elimination Act (GPEA)	Yes	No <u>X</u>
c. Was a privacy impact assessment performed for this project?	Yes	No <u>X</u>
d. Was this project reviewed as part of the FY 2002 Government Information Security Reform Act review process?	Yes	No <u>X</u>
If yes, were any weaknesses found? N/A	Yes	No

Have the weaknesses been incorporated into the agency's corrective action plans? N/A

e. Has this project been identified as a national critical operation or asset by a Project Matrix review or other agency determination? Yes No X

e.1 If no, is this an agency mission critical or essential service, service, system, operation, or asset (such as those documented in the agency's COOP Plan), other than those identified above as national critical infrastructures? Yes X No

SUMMARY OF SPENDING FOR PROJECT STAGES

(\$ in thousands)

Project Costs	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total
Analysis ¹	310							310
Phase 1 ²		1236						1236
Phase 2 ³			3528					3528
Phase 3 ⁴				3575				3575
Phase 4 ⁵					3874			3874
Acquisition Budgetary Resources:	310	1236	3528	3575	3874			12523
Outlays:	270	1115	3230	3569	3835	504	0	12523
Long Dist Usage	850	850	850	808	808	808	808	5782
Local Usage	350	350	350	325	325	325	325	2350
Voice PSTN	3310	2836	2201	1569	979	820	820	12,535
Data PSTN	820	890	1035	1085	1140	1197	1257	7424
WITS Services	1500	1300	900	500	200	100	75	4575
SAO & STRI	902	902	902	902	902	902	902	6314
Radio ⁶	450	450	450	450	450	450	450	3150
Cabling	250	250	200	150	100	100	100	1150
Data Net Equip	700	700	600	400	200	200	200	3000
Data Net Maint	350	400	375	400	425	450	450	2850
Network Ops ⁷	1139	1139	1139	1139	1139	1859	1859	9413
Maintenance Budgetary Resources:	10621	10067	9002	7728	6668	7211	7546	58843
Outlays:	9240	10139	9141	7893	6806	7141	7502	57862
Total Budgetary Resources:	10931	11303	12530	11303	10542	7211	7546	71366
Outlays:	9510	11254	12371	11462	10641	7645	7502	70385

¹ Analysis to evaluate alternatives, develop architecture, conduct pilot test, and support implementation activities. In addition, Trust funds in the amount of \$260,000 were used to purchase pilot equipment and installation services.

² Includes equipment and installation services and Public Switched Network (PSTN) charges for core backbone components and voice mail, National Air & Space Museum on the Mall and at Dulles, Freer/Sackler Gallery. Trust funds in the amount of \$362,628 will be used to purchase equipment and installation services for Air & Space at Dulles.

³ Includes equipment and installation services and PSTN charges for National Museum of the American Indian (NMAI) on the Mall and in New York, Renwick Gallery, Hirshhorn Museum, National Museum of African Art, units in the Quadrangle, National Postal Museum, and the National Museum of American History. Funds amounting to \$360,000 for telephone equipment and services planned for the NMAI museum on the Mall are included in its budget submission.

⁴ Includes equipment and installation services and PSTN charges for NMAI Cultural Resources Center, Museum Support Center, units in the North Capital Facility, Cooper-Hewitt, Archives of American Art, the National Zoological Park, and the National Museum of Natural History.

⁵ Includes equipment and installation services and PSTN charges for the National Portrait Gallery, Smithsonian American Art Museum, NMAI offices in L'Enfant Plaza, NASM-Garber, Anacostia/Center for African American History & Culture, Walter Reed Green House, and units in the Arts & Industries, Castle, and Victor buildings.

⁶ Radio communications includes trunked radio systems for museum security, ship-to-shore communications for research vessels for STRI and SERC, as well as microwave communications for Whipple Observatory.

⁷ In-house and contractor staff to support day-to-day voice and data telecommunications systems.

I.A. Project Description

The Smithsonian plans to implement a modern telecommunications infrastructure over a 4-year period beginning in FY 2003. The future telecommunications infrastructure will reduce costs, improve reliability, provide for growth supported by proven technology, integrate with the Internet Protocol (IP) communications architecture, and ultimately provide for an infrastructure to support voice and data on a single platform. The Smithsonian's Capital Planning Board approved the telecommunications modernization project on June 19, 2001. Factors driving this project are equipment and cable plant obsolescence. The Institution has two cable plant systems one for voice services and one for data services. The cable plant infrastructure for voice services has not kept pace with industry standards and parts of it are more than 50 years old. No standard exists for telephone user equipment. The primary services vendor refuses to maintain more than 50% of the telephones because they are too old. That figure will rise to 70% in FY 2004.

I.B. Justification**1. How does this investment support your agency's mission and strategic objectives?**

The Telecommunications System Modernization (TSM) project supports the Smithsonian's strategic goal of modernizing its management systems and bringing each to a level of quality and sophistication appropriate to an organization of the size and complexity of the Institution. Specifically, it supports an Institutional objective to bring its information technology systems and functions up to date.

As the Smithsonian builds its framework for the 21st century, it must meet the challenges of integrating voice, data and other telecommunications applications. The existing telephone network is a leased telephone central office based (Centrex) system. The infrastructure hardware and software are located on the telephone company premises. There are roughly 10,000 telephone lines in this system. The Institution depends upon the vendor for physical telephone station moves, adds and changes. Service intervals do not conform to the needs of the users. These changes are costly and must be scheduled according to vendor service intervals. Repair response intervals are increasing and unacceptable to users. In addition, there are about 500 other telephone lines not serviced through the Centrex system. These additional telephone lines are provided through the General Services Administration and/or the local telephone company.

The Smithsonian Institution has two cable plant systems, one for voice services and one for data services. The cable plant infrastructure for voice services has not kept pace with industry standards and must be upgraded to modernize its voice systems to facilitate the convergence of voice, data and videoconferencing on the same communications network. The existing voice cable plant in most Smithsonian buildings is outdated. To illustrate, the National Museum of Natural History's cable plant is more than 50 years old. The National Museum of American History's cable plant is more than 40 years old, and the building distribution system uses a system that requires technicians to actually solder connections. These aged cable plants do not support the demands for enhanced services needed to keep pace with the mission for the Institution and its interaction with the public. The data cable plant in most museums has been upgraded to industry standards. The selected alternative allows SI to utilize the existing data cabling for voice whereas the other alternatives would require SI to update/replace most of the voice cable plant.

There is no standard for telephone user equipment at the Institution. The equipment is a variety of single line, multi-line, 1A2 key, electronic key (analog and digital) and ISDN (digital) telephone sets. Telephone station equipment includes five models of single line telephones; five models of multi-line telephone sets; six analog electronic key systems and station equipment; five digital electronic key systems and station

equipment; ISDN and an ISDN/digital agent call center application. Of the approximately 8500 telephone stations and 10,000 telephone lines currently using Centrex in the Washington Metropolitan Area, 75% are key telephones. A large portion of the telephones can only be repaired with used parts that will not be available in the very near future. The labor costs also have escalated for the repair of this equipment. Voice mail is either integrated with electronic key systems or connected to an adjunct Institutional Voice Mail System. The Institutional voice mail system has experienced two failures this year that have impacted all users. Few users can send voice mail messages to users in other units across the Institution. Voice and data messaging is not integrated and video teleconferencing is limited. There is no common intercommunication, voice mail or facsimile system. These systems vary from unit to unit. This infrastructure is in need of enhancements to allow current technology to improve the productivity of the museums and provide added functionality. The primary services vendor refuses to maintain more than 50% of the telephones because they are too old. That figure will rise to 70% in FY 2004. Equipment that fails is repaired on a "best effort" depending on the availability of parts or knowledgeable technicians.

The Institution's telephony systems are old and do not meet many of the functional or programmatic requirements of the Smithsonian users or the public customers in a cost effective manner. The Institution has 72 Key Telephone Systems and five Private Branch Exchanges that are costly to maintain because each of these systems requires separate inventory and specialized technical expertise from support staff, employees and vendors. The Smithsonian has to rely on a small group of qualified technicians to perform operations and maintenance functions. Many of the technicians both on staff at the Smithsonian and its vendors are nearing retirement and new technicians are not being trained on obsolete systems used throughout the Institution. Failures of this equipment will result in longer outages, and ad-hoc purchases of equipment on an emergency basis.

The Institution's telephony systems have evolved over time and operate as telecommunications "islands" with little or no interoperability between each other. They require duplicate operational and management functions, have redundant applications, such as voice messaging and call center functionality, are proprietary in nature and design, and do not conform to any SI enterprise standard of design, procurement, implementation, or operations. Additionally, the existing dial plan does not allow the organization to migrate into an enterprise type system. To implement a manageable telephony system at the Smithsonian will require the Institution to abandon the current "islands" for a single enterprise system.

2. How does it support the strategic goals from the President's Management Agenda?

The Telecommunications Modernization Project supports the President's Management Agenda E-Government goal to improve effectiveness and efficiency of internal operations and infrastructure.

3. Are there any alternative sources in the public or private sectors that could perform this function?

The existing telephone network is a leased telephone central office based (Centrex) system. The option to implement a modern Centrex-based telephone system is the only practical form of outsourcing.

4. If so, explain why your agency did not select one of these alternatives.

The alternative to implement a modern Centrex-based telephone system costs \$41.6 million more than the preferred alternative over the 10-year period and satisfies fewer requirements – the Smithsonian would pay more and get less through outsourcing.

5. Who are the customers for this project?

Customers for the Telecommunications Modernization project are all users of the Institution's voice and data networks—employees, volunteers, visiting scholars and scientists, interns, and contractors.

6. Who are the stakeholders of this project?

Key stakeholders for the Telecommunications Modernization project include the Chief Information Officer and all Directors of Smithsonian museums, research facilities, and offices.

7. If this is a multi-agency initiative, identify the agencies and organizations affected by this initiative.
N/A

8. How will this investment reduce costs or improve efficiencies?

The Telecommunications Modernization project will replace 72 key telephone systems and 5 private branch exchanges. As the Smithsonian migrates to a modern telecommunications system, it will be better positioned to add new products and leverage the infrastructure to better serve all Smithsonian units. A modern telecommunications system will allow the Smithsonian to:

- Reduce the cost to provide voice and data network services by \$3.6 million annually beginning in FY 2008.
- Improve customer service by locating the system on Smithsonian premises to eliminate dependency on vendors for system administration and day-to-day operational needs and to simplify move, add, and change procedures. System changes can be performed in real time by on-site staff, eliminating many current charges for these services.
- A centralized Help Desk that supports other information technology programs can be used, and remote user programming and trouble-shooting will reduce existing installation and repair intervals, saving time and money.
- Improve system management through better reporting and monitoring of system performance and improved analysis of end-user data for problem management and resolution.
- Improve security of the telecommunications infrastructure.
- Move from a closed proprietary based systems to an open standards based telephony system.
- Provide a set of standard telephony applications across the SI network to meet user and public requirements. New applications based on voice capabilities can be combined with Internet technologies.

9. List all other assets that interface with this asset.

The Telecommunications System Modernization project is a major IT infrastructure component. All business applications and telephones will rely on it.

Have these assets been reengineered as part of this project? Yes No X

I.C. Performance Goals and Measures (All Assets)

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY 2002)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
2008–2012	Management Excellence	<p>1. Cost to provide voice and data services is \$10,931 per year.</p> <p>2. Request for move, add, or change takes 2 to 6 weeks.</p>	<p>1.Reduce cost of voice and data network services.</p> <p>2. Provide a higher quality of service to the SI user for moves, adds, and changes.</p>		<p>1. Reduce cost by \$3.3 million annually beginning in FY 2008.</p> <p>2. Satisfying requests for moves, adds or changes will be reduced from weeks to 4 hours for changes and 5 workdays for moves and adds.</p>	

I.D. Program management

1. Is there a program manager? Yes. Joseph Johnston has been assigned as the Telecommunications Modernization project manager.
2. Is there a contracting officer assigned to the project? If so, what is his/her name? Yes, Marianne Ingold has been assigned as the contracting officer.
3. Is there an Integrated Project Team? Yes.
- 3.A. If so, list the skill set represented.

The Institution has established a project team led by a project manager from the Office of the Chief Information Officer. Information technology staff from Smithsonian units will be included on the project team during the four-year migration project. The project team will follow a disciplined life cycle management process defined in Smithsonian Directive 920 and tailored for IT infrastructure components.

4. Is there a sponsor/owner? Yes, the Chief Information Officer

I.E. Alternatives Analysis

1. The Smithsonian has prepared an economic analysis that compares maintaining the current voice and data network infrastructure as it is done today with three alternatives: (1) converging to a Voice over Internet Protocol (VoIP) based system, (2) modernization of the current Centrex, and (3) installing a separate voice PBX network. Each of these alternatives has been compared over a 10-year system life. The preferred alternative will be incrementally implemented over a 4-year period (FY2003-FY 2006). The current environment is in a fragile state and systems failures within the islands may require replacement prior to the modernization schedule. The following alternatives were considered in this analysis: The Smithsonian determined that implementing a commercial library management software product was preferable to developing a new in-house system or maintaining the legacy in-house system. The following alternatives were considered in this analysis:

Alternative	Description
Alternative 1	<i>Maintain Current Systems.</i> The Institution currently has 72 key telephone systems and 5 PBX telephone systems in operation, along with multiple call centers and voice messaging systems, which cannot support the Institution's telephony requirements (please see comparison table below) and the increased demand for telecommunications services across the Institution and from the public. In addition, the cost to operate and maintain these systems and the data network switching equipment are projected to cost \$109.2 million through FY 2012 or about \$25 million more than the preferred alternative.
Alternative 2	Voice over Internet Protocol (VoIP). This preferred alternative includes purchasing off-the-shelf telephony products, obtaining contractual services to help implement the commercial IP telephony system to reflect the Smithsonian's telephony requirements, and to provide training to SI end-users and operational staff. The VoIP alternative satisfies the most functional requirements at the lowest cost. By implementing a commercial VoIP Telephony product, the Smithsonian will be able to leverage telecommunications tools in a standards-based environment across the enterprise. The cost to implement and operate the telecommunications system (voice and data) network and to operate existing systems during the phase-in period of the 10-year system life is about \$84.3 million. The Smithsonian estimates that it will save \$25 million during the 10-year system life by implementing VoIP telephony instead of maintaining the current system.
Alternative 3	<i>Implement Modern Centrex Telephone System:</i> For this alternative the Institution would standardize handsets, upgrade feature sets on the telephone lines, and replace the call center and voice messaging systems. The primary services needed would continue to be provided by the "phone company"—WITS. This alternative would require extensive re-cabling to each of the historic buildings that need modernization. The Smithsonian estimates that the cost to implement and operate a modern Centrex system during the 10-year system life is \$125.9 million or about \$41.6 million more than the preferred alternative. This alternative also does not satisfy as many functional requirements as the preferred alternative.
Alternative 4	<i>Implement Private Branch Exchange (PBX) Telephone System.</i> For this alternative the Institution would purchase a PBX system, new telephones, call centers, and voice messaging for most of its buildings and each PBX would be networked together. The cabling for this alternative would be very extensive and would require a computer-room-type environment to be built for each PBX. In addition, the upfront investment cost in FY 2003 exceeds available funds. The cost to implement and operate a PBX system during the 10-year system life is about \$106.7 million or about \$22.4 million more than the preferred alternative. This alternative also does not satisfy as many functional requirements as the preferred alternative.

- Summarize the results of your lifecycle cost analysis performed for each investment and the underlying assumptions.

The cost to operate and maintain the current voice and data networks are projected to cost \$109.2 million through FY 2012. The cost to implement and operate the VoIP telecommunications system (combined voice and data) network and to operate existing systems during the phase-in period of the 10-year system

life is about \$84.3 million. The cost to implement and operate a modern Centrex system and to operate existing systems during the phase-in period of the 10-year system is about \$125.9 million. The cost to implement and operate a PBX system and to operate existing systems during the phase-in period of the 10-year system is about \$106.7 million. A key assumption was that the existing data cable plant can also service voice needs. Furthermore, the PBX alternative required a large up-front investment and funds are not available.

3. Which alternative was chosen and why? Define the Return on Investment (ROI).

The Institution selected Alternative 2—*Voice over Internet Protocol*. The VoIP alternative satisfies the most functional requirements at the lowest cost.

3. A. Are there any quantitative benefits that will be achieved through this investment (e.g., systems savings, cost avoidance, stakeholder benefits, etc)?

The Smithsonian prepared an economic analysis that compared the four alternatives over a 10-year systems life. The economic analysis included a sensitivity analysis that considered two scenarios that included cost overruns of 10 percent and 20 percent for installation services. Equipment prices are known and predictable. The sensitivity analysis does not include a schedule slippage as the four-year implementation period was determined based on the most probable funding stream. If funds were available sooner, the modernization project could be completed in two years rather than four and the benefits (cost avoidance) would be significantly higher. The “best case” scenario projects a \$25 million cost savings over the 10-year system life.

The economic benefits generated by a telecommunications modernization project over the period, FY 2003–FY 2012, outweigh its investment costs by \$25 million. The decision to implement a modern telecommunications infrastructure is cost effective when compared to the alternative of maintaining the current infrastructure in a decentralized approach. As evidenced by the economic analysis, the telecommunications modernization project is cost justified over the 10-year time horizon. The cost avoidance savings provides an expected net present value of \$15 million when discounted at 7% over the period FY 2003–FY 2012. Cost aside, single, integrated VoIP system eliminates redundancy in the telecommunications infrastructure, satisfies more functional requirements, improves efficiency, provides for growth supported by proven technology, integrates with the Internet protocol communications architecture, and ultimately will provide for an infrastructure to support voice and data on a single platform.

3. B. For alternative selected, provide financial summary, including Net Present Value by Year and Payback Period Calculations:

Under the “best case” or “expected outcome” scenario, the economic benefits generated by the telecommunications modernization project during the 10-year economic life outweigh the investment costs. The following chart depicts the “best case” scenario.

Costs & Expected Benefits Under “Best Case” Scenario for Telecommunications Modernization

Voice over Internet Protocol (VoIP)

Net Present Value and Related Outcome Measures Using Mid-Year Discount Factors (7%)
(\$ in thousands)

Fiscal Year	Expected VoIP Yearly Cost (see note below)	Expected Yearly Cost of Current System (see note below)	Discount Factors for 7%	Present Value of VoIP Costs (Col 2 x Col 4)	Present Value of Current System Cost (Col 3 x Col 4)	Present Value of Cost Avoidance
1	2	3	4	5	6	7
FY2003	\$11,366	\$10,331	0.9667	\$10,988	\$9,987	(1,001)
FY2004	\$11,087	\$10,797	0.9035	\$10,017	\$9,755	(1,263)
FY2005	\$9,947	\$10,731	0.8444	\$8,399	\$9,061	(601)
FY2006	\$10,212	\$10,531	0.7891	\$8,058	\$8,310	(349)
FY2007	\$8,898	\$10,531	0.7375	\$6,562	\$7,767	856
FY2008	\$6,563	\$11,251	0.6893	\$4,524	\$7,755	4,087
FY2009	\$6,563	\$11,251	0.6442	\$4,228	\$7,248	7,107
FY2010	\$6,563	\$11,251	0.6020	\$3,951	\$6,773	9,929
FY2011	\$6,563	\$11,251	0.5626	\$3,692	\$6,330	12,567
FY2012	\$6,563	\$11,251	0.5258	\$3,451	\$5,916	15,032
Total	\$84,325	\$109,176		\$63,870	\$78,902	15,032

Notes: Column 2 includes costs associated with project development, equipment purchase, and installation, customization, dual operation during installation phase, expected upgrades in out-years, and normal ongoing operating costs.

Column 3 includes the cost to maintain current systems.

The “worst case” scenario projects cost overruns of 20 percent for installation services. Under the “worst case” scenario, the Smithsonian will realize \$7.9 million undiscounted savings through cost avoidance. The following chart depicts the “worst case” scenario.

Costs & Expected Benefits Under “Worst Case” Scenario for Telecommunications

Cost Overruns of 20% for Installation Services

Net Present Value and Related Outcome Measures Using Mid-Year Discount Factors (7%) (\$ in thousands)

Fiscal Year	Expected VoIP Yearly Cost (includes Development & Ongoing Costs)	Expected Yearly Cost of Current System	Discount Factors for 7%	Present Value of VoIP Costs (Col 2 x Col 4)	Present Value of Current System Cost (Col 3 x Col 4)	Present Value of Cost Avoidance
1	2	3	4	5	6	7
FY2003	\$13,639	\$10,331	0.9667	\$13,185	\$9,987	(\$3,198)
FY2004	\$13,304	\$10,797	0.9035	\$12,021	\$9,755	(\$5,463)
FY2005	\$11,936	\$10,731	0.8444	\$10,079	\$9,061	(\$6,481)
FY2006	\$12,254	\$10,531	0.7891	\$9,670	\$8,310	(\$7,841)
FY2007	\$10,678	\$10,531	0.7375	\$7,875	\$7,767	(\$7,949)
FY2008	\$7,876	\$11,251	0.6893	\$5,429	\$7,755	(\$5,623)
FY2009	\$7,876	\$11,251	0.6442	\$5,073	\$7,248	(\$3,448)
FY2010	\$7,876	\$11,251	0.6020	\$4,741	\$6,773	(\$1,416)
FY2011	\$7,876	\$11,251	0.5626	\$4,431	\$6,330	\$483
FY2012	\$7,876	\$11,251	0.5258	\$4,141	\$5,916	\$2,258
Total	\$101,190	\$109,176		\$76,644	\$78,902	\$2,258

Note: Costs exceed benefits when expected cost overruns are approximately 23.6% higher than anticipated.

4. What was the date of your cost benefit analysis? September 2001, updated August 2002.

I.F. Risk Inventory and Assessment

The trend to converge voice and data networks on an enterprise level is in the early adoption phase but market acceptance is growing rapidly. IP Telephony systems have been highly successful in reducing total cost of ownership in both the government and higher education markets that have historically been Centrex users. The risks associated with new system development—excessive time delays and cost overruns—are minimized by using commercially available products. The following major project-related risks can adversely affect project cost and schedule:

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
t 2001	Organizational and Change Management	SI does not adopt IT management practices and processes needed to maintain a highly reliable, fault tolerant network for voice and data applications.	Low	The IT Management Committee will serve as a steering committee to ensure appropriate IT management practices are in place.	SI is currently conducting a VoIP pilot that will help identify IT management practices and processes.
Sept 2001	Business	SI will not be able to adequately train staff to use telephony tools.	Low	SI will develop a training plan.	Work has not begun.
April 2001	Data/Info	Baseline telephony information is not available.	Low	Conduct a baseline assessment of telephony assets.	SI completed a telephony baseline assessment in July 2001 and a VoIP network assessment in April 2002.
Sept 2001	Technology	SI will not have a robust IT infrastructure in place.	Medium	SI has initiated complementary project to modernize its LAN to Desktop infrastructure incrementally through FY 2005. This project is on track.	SI has increased contractor support for Help Desk and network services, as well as bandwidth to remote sites and upgraded network backbone switches.

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
Sept 2001	Technology	SI will have to implement portions of the systems early due to a current system failure.	Medium	SI will review each situation and determine how end of life cycle replacements can be accelerated to fully comply and integrate with TSM.	Work has not begun.
March 2000	Strategic	SI will not have a modern telephone system.	Low	The TSM project meets one of the Secretary's strategic goals of modernizing systems.	SI is currently conducting a VoIP pilot.
July 2002	Security	The IT infrastructure will not have adequate intrusion detection and firewalls in place.	Medium	SI plans to implement an adequate intrusion detection system and redesigned firewall in FY 2004.	SI has reduced the number of services passing through the existing firewall.
March 2001	Privacy	The TSM project will not provide adequate safeguards to protect Privacy Act data.	Low.	The system will allow security measures to be applied and managed from an enterprise perspective.	Work has not begun.
Sept 2001	Project Resources	The TSM project will not be adequately funded.	Medium	Modernizing the telephony system is a priority. SI will stretch out the implementation period to fit the available funding profile.	N/A

1. What is the date of your risk management plan? September 2001.

I.G. Acquisition strategy

The Smithsonian plans to use existing government contracts to acquire and implement commercially available hardware and software products to modernize the telecommunications system.

1. Will you use a single contract or several contracts to accomplish this project?

The Smithsonian will use multiple contracts to support the TSM project.

- 1.A. If multiple contracts are planned, explain how they are related to each other, and how each supports the project performance goals.

The Institution plans to rely on the National Aeronautics and Space Administration's *Scientific and Engineering Workstation II (SEWP II)* government-wide contract to acquire commercial hardware and software and system implementation services. The Smithsonian has relied on *Technology Trends* to assess the current baseline, identify user requirements, identify industry trends, and develop a strategic telecommunications plan and supporting business case for the replacement system. The Smithsonian will continue to use *Technology Trends* for project management support and IV&V services.

1. What type(s) of contract(s) will you use?

The *Scientific and Engineering Workstation III (SEWP III)* government-wide contract and the *Technology Trends* contract are both fixed price.

- 2.A. For cost reimbursement contracts, define risk not sufficiently covered by the risk mitigation plan to require this type of contract. N/A

3. Will you use financial incentives to motivate contractor performance? No.

4. Will you use competition to select suppliers? Yes, hardware, software, and services are provided via government-wide contract. This uses competition among pre-qualified companies.

5. Will you use commercially available or COTS products, or custom-designed products? The Smithsonian will use commercially available products.

6. What is the date of your acquisition plan? The Institution did not prepare a formal acquisition plan.

7. How will you ensure Section 508 compliance?

The Smithsonian will acquire telephony equipment that is section 508 compliant.

I.H. Project and Funding Plan

The information required by this section will be provided by your earned value management system.

The Smithsonian is not able to implement an earned value management system until FY 2005 after deployment of the Projects and Time and Labor modules of the Enterprise Resource Planning System.

I.H.1. Description of Performance Based Management System

To help assure that quality of the technical work products is acceptable, the Smithsonian has established the System Architecture and Product Assurance office to administer programs for system architecture, quality assurance, and independent testing of application software and information technology infrastructure. The primary purposes of the technical reviews conducted by the Product Assurance office are to improve the quality of intermediate work products, correct defects as early in the life cycle as possible, and prevent problems over the long run. These mechanisms provide visibility into the information technology project's business and technical characteristics, as well as establish management control points for assessing project cost, schedule, and quality.

To help manage and control the project, the Smithsonian uses *Microsoft Project Central* as its project management control system. The project management control system will provide for tracking schedule performance against project plan milestones.

To help assure that requirements are being met, the Smithsonian has established a Technical Review Board. The Board, chaired by the Director of System Architecture and Product Assurance and consisting of senior IT managers from across the Institution, evaluates the progress of each major IT project and assesses the quality of project deliverables. Its primary objectives are:

- improving the overall level of project success, system quality, and productivity
- ensuring that risk is reduced to an acceptable level by completing assessments at key project milestones.

The Technical Review Board ensures that the Life Cycle Management (LCM) methodology, which specifies standards for the initiation, concept and requirements definition, detailed analysis and design, development and testing, deployment, and operations phases, is followed in a coordinated, common sense manner for all projects. The Board also monitors acceptance testing, product assurance, and configuration management functions for hardware, software, and documentation.

I.H.2. Original Baseline

Cost and Schedule Goals: Original Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Analysis Phase	04/2001	09/2002	540	310	Smithsonian
Deploy Phase 1	10/2002	09/2003	365	1236	Smithsonian
Deploy Phase 2	10/2003	09/2004	365	3528	Smithsonian
Deploy Phase 3	10/2004	09/2005	365	3575	Smithsonian
Deploy Phase 4	10/2005	09/2006	365	3874	Smithsonian
Completion date: 09/2006			Total cost estimate at completion: 12,523*		

*Estimate for completion is for development only. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

I.H.3. Proposed baseline/current baseline

The original baseline is the current baseline.

I.H.4. Actual performance and variance from OMB approved baseline

Comparison of OMB-Approved Baseline and Actual Outcome Phase/Segment/Module of a Project									
Description of Milestone	OMB-Approved Baseline					Actual Outcome			
	Schedule			Planned Cost (\$ 000)	Funding Agency	Schedule		Percent Complete	Actual Cost
	Start Date	End Date	Duration (in days)			Start Date	End Date		
Analysis Phase	04/2001	09/2002	540	310	SI	04/01	09/02	100%	310
Deploy Phase 1	10/2002	09/2003	365	1,236	SI				
Deploy Phase 2	10/2003	09/2004	365	3,528	SI				
Deploy Phase 3	10/2004	09/2005	365	3,575	SI				
Deploy Phase 4	10/2005	09/2006	365	3,874	SI				
Completion date: 09/2006					Estimated completion date:09/2006				
Total cost: \$12,523					Estimate at completion: \$12,523				

Part II: ADDITIONAL BUSINESS CASE CRITERIA FOR INFORMATION TECHNOLOGY**II. A. Enterprise Architecture****II.A.1 Business**

A. Is this project identified in your agency's enterprise architecture? Yes.

B. Explain how this project conforms to your departmental (entire agency) enterprise architecture.

The Smithsonian Institution completed a baseline inventory of automated information systems and IT products in March 2001 to establish an enterprise IT architecture. Based on an analysis of the IT baseline, the Smithsonian defined a conceptual target IT architecture in July 2001 and published a Technical Reference Model (TRM) in January 2002. The TRM defines a comprehensive set of information technology standards, services, protocols, and products that define the target technical environment for the acquisition, development, and support of Smithsonian application systems, enterprise architecture, and the supporting IT infrastructure. The Technical Reference Model is based on the most recent version of the National Institute of Standards and Technology's Application Portability Profile. Work conducted through this project will help evolve the Institution's enterprise IT architecture. The TRM is updated on an annual basis and include Voice over Internet Protocol (VoIP) for the integrated voice and data network in version 2.0.

C. Identify the Lines of Business and Sub-Functions within the Federal Enterprise Architecture Business Reference Model that will be supported by this initiative.

The Telecommunications System Modernization project will support the Internal Operations and Infrastructure line of business.

D. Briefly describe how this initiative supports the identified Lines of Business and Sub-Functions of the Federal Business Architecture.

The Telecommunications System Modernization project will provide data and voice communications services for all Smithsonian units.

E. Was this project approved through the EA Review committee at your agency?

Yes. The TSM project was approved by the Capital Planning Board on June 21, 2001.

F. What are the major process simplification/reengineering/design projects that are required as part of this initiative? None required.

G. What are the major organization restructuring, training, and change management projects that are required?

There are no major organization restructuring or change management projects. Training is part of the TSM project.

H. What are the Agency lines of business involved in this project?

Information Technology Management

I. What are the implications for the agency business architecture?

The TSM project will replace 72 key telephone systems and 5 private branch exchanges and improve customer service by locating the system location on Smithsonian premises. This will eliminate dependency on the telephone company for system administration and day-to-day operational needs and simplify move, add, and change procedures. System changes can be performed in real time by on-site staff, eliminating many current charges for these services.

II.A.2 Data

A. What types of data will be used in this project? IT performance management, personnel, and facilities data.

B. Does the data needed for this project already exist at the Federal, State or Local level? If so, what are your plans to gain access to that data?

The data used in the TSM project is internal Smithsonian data. It does not exist at the Federal, State or Local level.

C. Are there legal reasons why the data can't be transferred? If so, what are they and did you address them in the barriers and risk sections above. N/A

D. If this initiative processes spatial data, identify planned investments for spatial data and demonstrate how the agency ensures compliance with the Federal Geographic Data Committee standards required by OMB Circular A-16. N/A

II.A.3 Application and Technology

A. Discuss this initiative/project in relationship to the application and technology layers of the EA. Include a discussion of hardware, applications, infrastructure, etc.

The Telecommunications System Modernization project will provide the backbone for both the voice and data networks. Applications supported are voice mail and the telephone.

B. Are all of the hardware, applications, and infrastructure requirements for this project included in the EA Technical Reference Model? No. Network backbone equipment is in the current version of the TRM. VoIP equipment will be added to the Smithsonian Technical Reference Model version 2.0 scheduled for publication in December 2002.

II.B. Security and Privacy

II.B.1 How is security provided and funded for this project?

Sensitive financial, procurement, budget, and personnel information will be transmitted over the network. This data is considered confidential. A major objective of the Telecommunications System Modernization project is to improve security as security measures can be applied and managed from an enterprise perspective. The Smithsonian is dependent on its voice communications system to support day-to-day operations. This dependence makes it imperative that the Smithsonian adequately safeguard its telecommunications systems. The Smithsonian will explicitly consider security throughout the Telecommunications System Modernization project life cycle and will document security requirements in an IT Security Plan. The plan will capture the structured process of planning and implementing adequate, cost-effective security protection for the telecommunications infrastructure. The main security issue with any voice system is long distance fraud. Converging the telecommunications platform will allow the voice system to take advantage of the increased security safeguards of the overall network.

A. What is the total dollar amount allocated to security for this project? Security costs are included in the system deployment costs and not broken out separately.

II.B.2 Does the project meet the following security requirements of the Government Information Security Reform Act, OMB policy, and NIST guidance?

A. Does the project have an up-to-date security plan that meets the requirements of OMB policy and NIST guidance? What is the date of the plan?

The TSM project security plan will be completed in July 2003.

B. Has the project undergone an approved certification and accreditation process? No

C. Have the management, operational, and technical security controls been tested for effectiveness?
No

D. Have all system users been appropriately trained in the past year, including rules of behavior and consequences for violating the rules? No. Users will be trained prior to system implementation.

E. How has incident-handling capability been incorporated into the system, including intrusion detection, monitoring and audit log reviews? The Smithsonian's Information System Security Officer manages the response to major computer security incidents. Incidents are reported to the FedCIRC Operation Center. The FY 2004 budget request includes funding to implement an adequate intrusion detection system.

F. Is this system operated by contractors either on-site or at a contractor facility? If yes, does any such contract include specific security requirements required by law and policy? How are contractor security procedures monitored, verified, and validated by the agency? The Smithsonian will use contractors to augment in-house staff to operate the telecommunications system on-site. Contractors will undergo a National Agency Check (NAC) background check.

II.B.3 How does the agency ensure the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access?

The Smithsonian has designed a security infrastructure approach consistent with E-Gov Enterprise Architecture Guidance that will be implemented in FY 2004 and FY 2005 through a companion IT project.

II.B.4 How does the agency ensure that the handling of personal information is consistent with relevant government-wide and agency policies?

Security for personal data is restricted by security profiles.

II.C. Government Paperwork Elimination Act (GPEA)

The Telecommunications System Modernization project supports the electronic government goals of the Government Paperwork Elimination Act (GPEA) by putting in place a robust voice and data communications infrastructure that will enable the Institution to more effectively serve the public electronically. Since the Telecommunications Modernization System project primarily supports internal operations and will not place a paperwork burden on the public, the GPEA provisions are not applicable.

PART I: CAPITAL ASSET PLAN AND BUSINESS CASE

Agency: Smithsonian Institution

Bureau: (OIA)

Account Title: Salaries & Expenses

Account Identification Code: 33-0100-0

Program Activity:

Name of Project: SAO Scientific Computing

Unique Project Identifier: 452-00-01-04-10-1001-00

Project Initiation Date: 04/2001

Project Planned Completion Date: 09/2007

This Project is: Initial Concept ____ Planning ____ Full Acquisition ____ Steady State X

Mixed Life Cycle ____

Project/useful segment is funded: Incrementally Fully XWas this project approved by OMB for previous Year Budget Cycle? Yes No XDid the Executive/Investment Review Committee approve funding for this project this year? Yes X NoDid the CFO review the cost goal? Yes X NoDid the Procurement Executive review the acquisition strategy? Yes X NoIs this investment included in your agency's annual performance plan or Multiple agency annual performance plan? Yes X NoDoes the project support homeland security goals and objectives, *i.e.*, 1) improve border and transportation security, 2) combat bio-terrorism, 3) enhance first responder programs; 4) improve information sharing to decrease response times for actions and improve the quality of decision making? Yes No XIs this project information technology (see Section 300.4(e) for a definition)? Yes X No*For information technology projects only:*a. Is this project a financial management system (see section 42.2 for a definition)? Yes No XIf so, does this project address a FFMIA compliance area? Yes No
If yes, which compliance area? N/Ab. Does this project implement electronic transactions or record keeping that is covered by the Government Paperwork Elimination Act (GPEA)? Yes No Xc. Was a privacy impact assessment performed for this project? Yes No Xd. Was this project reviewed as part of the FY 2002 Government Information Security Reform Act review process? Yes No X

If yes, were any weaknesses found? N/A Yes No

Have the weaknesses been incorporated into the agency's corrective action plans? N/A Yes No

e. Has this project been identified as a national critical operation or asset by a Project Matrix review or other agency determination? Yes No X

e.1 If no, is this an agency mission critical or essential service, system, operation, or asset (such as those documented in the agency's COOP Plan), other than those identified above as national critical infrastructures? Yes X No

PART I: SUMMARY OF SPENDING FOR PROJECT STAGES

(\$ in thousands)

Project Costs	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total
Astronomical Image Analysis and Data Storage System				380	1,180	1,180			2,740
Acquisition				380	1,180	1,180			2,740
Budgetary Resources:									
Outlays:				331	1,076	1,180	154		2,740
IT Operations *	454	477	481	481	481	481	1,661	1,661	6,177
Astronomical Imaging SW Development and Maintenance	639	601	606	606	606	606	606	606	4,876
Maintenance	1,093	1,078	1,087	1,087	1,087	1,087	2,267	2,267	11,053
Budgetary Resources:									
Outlays:	1,093	938	1,086	1,086	1,087	1,087	2,113	2,267	10,758
Total	1,093	1,078	1,087	1,467	2,267	2,267	2,267	2,267	13,793
Budgetary Resources:									
Outlays:	1,093	938	1,086	1,417	2,163	2,267	2,267	2,267	13,498

* Beginning in FY 2007, periodic replacement costs for the Astronomical Image Analysis & Data Storage Systems are included under IT Operations.

I.A. Project Description

The Smithsonian Astrophysical Observatory (SAO) operates and maintains a scientific computing infrastructure to help scientists interpret data generated by its major facilities. SAO must provide rapid-access data storage to facilitate the analysis of large sets of data that result from observations at its telescopes and others. SAO must provide large-scale data storage arrays to provide workstations and servers with high-speed access to data on disks in geographically separate locations, the equivalent to having the disk directly connected to the local machine. SAO must make a substantial and continuing investment in the supporting infrastructure—scientific workstations and servers, Web servers, and

database engines—and replace them on a regular basis. SAO's implementation plans call for phased deployment beginning in FY 2004 and continuing through the end of FY 2006, at which time the project

will enter a steady-state mode of periodic replacement only. The Smithsonian Executive Committee approved the SAO Scientific Computing project on June 19, 2002.

I.B. Justification

1. How does this investment support your agency's mission and strategic objectives?

The SAO scientific computing project supports the Smithsonian's strategic objectives to (1) strengthen capacity and establish preeminence in science research "centers of excellence" and (2) conduct focused scientific research programs that are recognized for their quality, relevance, and high performance.

During the coming decade research at the Smithsonian Astrophysical Observatory will focus on fundamental scientific questions:

- (1) How did large-scale structures (e.g., pre-galactic, galaxies, clusters of galaxies) in the universe form and evolve?
- (2) How do stars—including the Sun—and planets form, evolve, and behave? What are the implications for life in the universe in general and on Earth in particular?
- (3) How do compact objects—black holes and neutron stars—form, evolve, and interact with their surroundings?

Data from SAO's major new scientific instrumentation programs, the Submillimeter Array (SMA) and the converted Multiple-Mirror Telescope (MMT), will play an essential role in addressing these questions. However, these state-of-the-art instruments will make ever-increasing demands on SAO's computation capabilities. Without major enhancements, SAO's research programs will quickly bog down; SAO scientists can make efficient use of telescope time only if data processing can keep up with the rate of data acquisition.

Maintaining SAO's scientific eminence demands a state-of-the-art computing environment. SAO's user community requires (i) the capability of manipulating and reducing large data sets; (ii) the ability to produce and analyze high-resolution images; (iii) a reliable network; and (iv) supporting computer services.

The volume of data generated by SAO's new instruments has to be stored, archived, and made readily accessible to the outside scientific community if the Nation is to realize the full benefits of its investment in astrophysical research. Demands for data storage are constantly increasing; SAO must be able to backup and archive stored data. MEGACAM, an instrument for the converted MMT, which will have 36 CCDs (charge-coupled devices, each with 2048 x 4608 pixels), is expected to come online in FY 2003 and alone will require fifty terabytes of online data storage capacity at all times so that observers can properly analyze their data. Likewise, the volume of data generated by the SMA will dwarf that with which SAO scientists have worked in the past.

SAO needs state-of-the-art multiple-processor machines to enable increasingly sophisticated simulations of astrophysical systems to be carried out. Without such capabilities SAO will be unable to meet the challenge of interpreting data generated by its major facilities.

Astronomical Image Analysis and Data Storage Systems. Progress addressing the first three scientific questions described above is critically dependent upon SAO's ability to analyze, store, and access large

data sets. Searches for planetary systems around other stars (question 2) are based on the ability to acquire, analyze, and store vast amounts of data. The instrumentation development programs for the

MMT and SMA address the needs for acquiring data; the Astronomical Image Analysis System and the Astronomical Data Storage programs play an essential role in analyzing and storing (and subsequently recalling) the post-analysis data. Studies of the early universe (question 1) require different kinds of data, but pose equally great demands on SAO's ability to analyze and store data. Similar requirements exist for studies of the interactions between compact objects and their environments. The scientific computing projects lie on the critical path to achieving SAO's scientific objectives.

2. How does it support the strategic goals from the President's Management Agenda?

The SAO Scientific Computing project supports the President's Management Agenda E-Government goals to use the Web to provide educational material, to streamline activities, and to improve productivity by research scientists by focusing on core competencies and mission requirements.

3. Are there any alternative sources in the public or private sectors that could perform this function?

No. Outsourcing radically alters the current mode of operation. SAO has a robust, well-integrated scientific computing infrastructure. This is specialized and highly optimized for basic research in astrophysics. The infrastructure is used not only by research staff at SAO but also as a research tool by the worldwide astronomical community. Outsourcing would not meet scientific computing requirements, but would introduce organizational change management problems and adversely affect SAO's mission.

4. If so, explain why your agency did not select one of these alternatives. Not applicable.

5. Who are the customers for this project?

Primary customers for the SAO Scientific Computing project are SAO scientists. The astrophysics community is a customer for the research findings and raw data.

6. Who are the stakeholders of this project?

Key stakeholders for the SAO Scientific Computing project include the Smithsonian Under Secretary for Science, the Director of the Smithsonian Astrophysical Observatory, SAO scientists and the national astrophysics research community.

7. If this is a multi-agency initiative, identify the agencies and organizations affected by this initiative. Not Applicable.

8. How will this investment reduce costs or improve efficiencies?

Continuing investment in the SAO scientific computing infrastructure will enable its scientists to manipulate and reduce large data sets, produce and analyze high-resolution images, and make efficient use of telescope time.

9. List all other assets that interface with this asset.

SAO Scientific Computing relies on the SAO IT Infrastructure.

Have these assets been reengineered as part of this project? Yes No X

I.C. Performance Goals and Measures (All Assets)

The effectiveness of the SAO Scientific Computing Project will be assessed by how well it allows the staff to carry out its mandate for leadership in basic astrophysics research and making information accessible to the public. Key performance measures include:

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY 2001)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
2004–2008	First Class Scientific Research: Maintain SAO's position at the forefront of research in astronomy, astrophysics, and related scientific areas	1. 250 publications annually in scholarly books and journals. 2. 80 presentations annually at professional society meetings. 3. 500 active users (internal and external) of scientific computing infrastructure. 4. Storage of 600 GB of optical and radio astronomical image data.	1. Increase by 50 the number of publications annually in scholarly books and journals. 2. Increase by 20 the number of presentations per year at professional society meetings. 3. Increase by 100 the number of active users (internal and external) of scientific computing infrastructure. 4. Increase by 19.4 TB amount of astronomical image data processing, reduction, analysis, and storage. 5. Increase by 20 TB the amount of astronomical image data storage and service to provide Web-based access to the astronomical research community.		1. 300 publications annually in scholarly books and journals. 2. 100 presentations annually at professional society meetings. 3. 600 active users (internal and external) of scientific computing infrastructure 4. 20 TB of astronomical image data processing, reduction, analysis, and storage. 5. 20 TB of astronomical image data storage and service to provide Web-based access to the astronomical research community.	

I.D. Program Management

1. Is there a program manager? Yes. Van McGlasson has been assigned as the SAO Scientific Computing project manager.
2. Is there a contracting officer? Yes, Judy Lees has been assigned as the contracting officer.
3. Is there an Integrated Project Team? Yes
- 3.A. If so, list the skill set represented.

The project team will follow a disciplined system development life cycle process prescribed by Smithsonian Directive 920 and tailored for the Scientific Computing environment. SAO has established a project team concept that recognizes the complementary roles of scientists, IT staff, and other supporting staff. Work groups composed of scientists and technical staff will implement the four initiatives that comprise the scientific computing infrastructure project.

4. Is there a sponsor/owner? Yes, the Director, Smithsonian Astrophysical Observatory.

I.E. Alternatives Analysis

1. Describe the alternative solutions you considered for accomplishing the agency strategic goals that this project was expected to address. Describe the results of the feasibility/performance/benefits analysis. Provide comparisons of the returns (financial and other) for each alternative.

Alternative	Description
Alternative 1	<i>Continue centrally managed scientific computing infrastructure:</i> The preferred alternative is to continue to enhance the centrally managed scientific computing infrastructure at SAO. These scientific computer systems are essential to continued success in conducting research in astrophysics. SAO has an outstanding track record for excellence in its scientific computing infrastructure.
Alternative 2	<i>Outsource the scientific computing infrastructure:</i> This alternative radically alters the current mode of operation. This option is not preferred because it will not meet the specialized needs of SAO's scientific computing requirements without prohibitive accompanying costs.

2. Summarize the results of your life cycle cost analysis performed for each investment and the underlying assumptions.

Cost Elements	Outsource Scientific Computing Infrastructure*	Managed Scientific Computing Infrastructure
Astronomical Image Analysis and Data Storage Systems		\$ 2,740,000
IT Operations		\$ 6,177,000
Astronomical Imaging SW Development & Maintenance		\$ 4,876,000
Total		\$13,793,000

* The Smithsonian has not identified costs of outsourcing the scientific computing infrastructure. Because of the specialized nature of this infrastructure, outsourcing can be expected to be prohibitively expensive.

3. Which alternative was chosen and why? Define the Return on Investment (ROI).

The preferred alternative is to continue with a centrally managed scientific computing infrastructure. SAO has a robust, well-integrated scientific computing infrastructure that is specialized and highly optimized for basic research in astrophysics.

3. A. Are there any quantitative benefits that will be achieved through this investment (e.g., systems savings, cost avoidance, stakeholder benefits, etc.)?

The Smithsonian has not quantified benefits for this project.

3. B. For alternative selected, provide financial summary, including Net Present Value by Year and Payback Period Calculations.

The Smithsonian has not computed net present value or calculated payback period.

4. What was the date of your cost benefit analysis?

The Smithsonian has not prepared a cost-benefit analysis for this project.

I.F. Risk Inventory and Assessment

Inasmuch as the SAO Scientific Computing Infrastructure is a mature operation, SAO envisions only one project risk.

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Status as of Date of this Exhibit
N/A	Organizational and Change Management				
N/A	Business				
N/A	Data/Info				
N/A	Technology				
N/A	Strategic				
N/A	Security				
N/A	Privacy				
July 2002	Project Resources	The project will not be adequately funded.	Medium	Seek alternative sources of funding.	Work has not begun.

1. What is the date of your risk management plan?

The Smithsonian has not prepared a risk management plan for this project. However, a risk has been identified for this project.

C. Acquisition strategy

1. Will you use a single contract or several contracts to accomplish this project?

The Smithsonian will use multiple contracts to support the SAO Scientific Computing project.

- 1.A. If multiple contracts are planned, explain how they are related to each other, and how each supports the project performance goals.

The Smithsonian Astrophysical Observatory (SAO) plans to acquire commercially available hardware and software products to implement and maintain its scientific computing infrastructure in addition to using and developing scientific data reduction and image analysis applications. The Observatory plans to rely on existing federal contracts to acquire commercial hardware and software. For hardware acquisition, the Smithsonian plans to use mechanisms such as General Services Administration (GSA) schedules, interagency agreements, and competitive procurements. For software seat/site license agreements, the Smithsonian plans to use full and open competition and acquisition through interagency agreements, small businesses, GSA schedules, and other sources.

2. What type(s) of contract(s) will you use?

Fixed price.

- 2.A. For cost reimbursement contracts, define risk not sufficiently covered by the risk mitigation plan to require this type of contract. Not applicable.

3. Will you use financial incentives to motivate contractor performance? No.
4. Will you use competition to select suppliers?

Yes. Hardware, software, and services will be provided via government-wide contracts or through Smithsonian-competed contracts.

5. Will you use commercially available or COTS products, or custom-designed products?

The Observatory will use commercially available products.

6. What is the date of your acquisition plan?

The Observatory has not yet prepared a formal acquisition plan. However, it will do so in FY 2003.

7. How will you ensure Section 508 compliance?

SAO will ensure that Section 508 provisions are included in any acquisition.

I.H. Project and Funding Plan

The information required by this section will be provided by your earned value management system.

The Smithsonian is not able to implement an earned value management system until FY 2005 after deployment of the Projects and Time and Labor modules of the Enterprise Resource Planning System.

I.H.1. Description of Performance Based Management System

To help ensure that scientific computing requirements are being met, the SAO Scientific Computing Advisory Committee prioritizes Scientific Computing enhancements, software upgrades, and acquisition of additional modules. To help manage and control the project, the SAO Scientific Computing project manager prepares and monitors detailed project plans that contain specifics on tasks such as data migration and enhancement, integration, training, testing, implementation, and related activities. The Institution uses *Microsoft Project Central* to monitor and manage project performance. The project management control system in use provides for tracking schedule performance against project plan milestones. This helps both senior scientific managers and project manager identify problem areas and take corrective actions when actual results deviate significantly from plans.

I.H.2. Original Baseline

Cost and Schedule Goals: Original Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Astronomical Image Analysis and Data Storage System	10/2003	09/2006	1,095	2,740	Smithsonian
Completion date: 09/2006			Total cost estimate at completion: 2,740*		

*Estimate for completion of Astronomical Image Analysis and Data Storage systems and includes only FY 2004–FY 2006 costs. Operations & Maintenance costs appear as part of the Summary of Spending for project stages.

I.H.3. Proposed baseline/current baseline

This is a new submission. Original baseline is the current baseline.

I.H.4. Actual performance and variance from OMB approved baseline

This is a new submission.

Part II: ADDITIONAL BUSINESS CASE CRITERIA FOR INFORMATION TECHNOLOGY**II.A. Enterprise Architecture****II.A.1 Business**

A. Is this project identified in your agency's enterprise architecture? Yes

B. Explain how this project conforms to your departmental (entire agency) enterprise architecture.

The Smithsonian Institution completed a baseline inventory of automated information systems and IT products in March 2001 to establish an enterprise IT architecture and deploy a managed IT infrastructure. Based on analysis of the IT baseline, the Smithsonian defined a conceptual target IT architecture in July 2001 and published a Technical Reference Model in January 2002. The model identifies a comprehensive set of information technology standards, services, protocols, and products that define the target technical environment for the acquisition, development, and support of Smithsonian automated information systems. The Technical Reference Model is based on the most recent version of the Application Portability Profile of the National Institute of Standards & Technology. The Institution has selected, where appropriate, information technology components that best support an open system environment. The underlying hardware and software platforms for the SAO Scientific Computing Infrastructure are included in the Smithsonian enterprise IT architecture. Scientific workstations will be added to the next version of the Technical Reference Model, which will be published in January 2003.

C. Identify the Lines of Business and Sub-Functions within the Federal Enterprise Architecture Business Reference Model that will be supported by this initiative.

The SAO Scientific Computing project will support the scientific research and development line of business.

D. Briefly describe how this initiative supports the identified Lines of Business and Sub-Functions of the Federal Business Architecture.

The SAO Scientific Computing project will support research in astrophysics conducted at the Smithsonian Astrophysical Observatory.

E. Was this project approved through the EA Review committee at your agency?

Yes. The Executive Budget Committee approved the SAO Scientific Computing project on June 19, 2002.

F. What are the major process simplification/reengineering/design projects that are required as part of this initiative? None required.

G. What are the major organization restructuring, training, and change management projects that are required?

There are no major organization restructuring or change management projects required.

H. What are the Agency lines of business involved in this project?

Scientific Research

I. What are the implications for the agency business architecture?

The scientific computing infrastructure helps SAO maintain its scientific eminence and will allow its user community to handle and reduce large data sets and to produce and analyze high-resolution images.

II.A.2 Data

A. What types of data will be used in this project?

Astrophysics data.

B. Does the data needed for this project already exist at the Federal, State or Local level? If so, what are your plans to gain access to that data?

No.

C. Are there legal reasons why the data can't be transferred? If so, what are they and did you address them in the barriers and risk sections above. Not applicable.

D. If this initiative processes spatial data, identify planned investments for spatial data and demonstrate how the agency ensures compliance with the Federal Geographic Data Committee standards required by OMB Circular A-16. Not applicable.

II.A.3 Application and Technology

A. Discuss this initiative/project in relationship to the application and technology layers of the EA. Include a discussion of hardware, applications, infrastructure, etc.

The SAO Scientific Computing infrastructure primarily supports the Application Platform Entity Service of the Technical Reference Model such as data management service, system administration, operating system, human computer interface service, and security services. Applications supported are scientific data reduction and image analysis. The scientific computing infrastructure also includes External Environment components such as communications and storage media.

B. Are all of the hardware, applications, and infrastructure requirements for this project included in the EA Technical Reference Model? No.

If not, please explain: Scientific workstations will be added to the next version of the TRM, which will be published in January 2003. All other components are in the current version of the TRM.

II.B. Security and Privacy

II.B.1 How is security provided and funded for this project?

SAO Scientific Computing applications maintain critical information on database systems and on data archiving devices that require a high degree of data integrity. The Smithsonian protects sensitive data from unauthorized access and/or disclosure and assures data integrity when stored in electronic form. It

also provides security against unauthorized alteration or modification. Data produced by the system is controlled with respect to access, authority to modify, and ability to operate within the system. SAO staff will have access through scientific workstations and high-speed scientific computer servers. The system will require users to authenticate their identity through entry of a user ID and password and allow access only to authorized users based on user profiles.

The public will have access to selected data through the Internet. Sensitive data will be protected from public access through a firewall. SAO will document security requirements in a Security Plan. The plan will capture security safeguards now in place, as well as those planned for scientific computing applications.

A. What is the total dollar amount allocated to security for this project?

Security costs are included in the operational costs and not separately broken out.

II.B.2 Does the project meet the following security requirements of the Government Information Security Reform Act, OMB policy, and NIST guidance?

A. Does the project have an up-to-date security plan that meets the requirements of OMB policy and NIST guidance? What is the date of the plan?

The SAO Scientific Computing project security plan will be completed in July 2003.

B. Has the project undergone an approved certification and accreditation process? No

C. Have the management, operational, and technical security controls been tested for effectiveness? No.

D. Have all system users been appropriately trained in the past year, including rules of behavior and consequences for violating the rules? Not yet; however SAO will ensure that this training is completed by September 30, 2003. The Institution published Smithsonian Directive 931, *Use of Computers and Networks*, on August 5, 2002. The Directive prescribes rules for employee behavior and identifies potential consequences. The Institution will implement an on-line computer awareness tutorial in FY 2003 and require employees to take the tutorial annually.

E. How has incident-handling capability been incorporated into the system, including intrusion detection, monitoring, and audit log reviews?

The Smithsonian's Information System Security Officer manages the response to major computer security incidents, which are reported to the FedCIRC Operation Center. The FY 2004 budget request includes funding to implement an adequate intrusion detection system.

F. Is this system operated by contractors either on-site or at a contractor facility? No.

If yes, does any such contract include specific security requirements required by law and policy? N/A

How are contractor security procedures monitored, verified, and validated by the agency? N/A

II.B.3 How does the agency ensure the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access?

The SAO scientific computing infrastructure does not process data subject to the Privacy Act. The data produced by the system is controlled with respect to access, authority to modify, and ability to operate

within it. SAO staff will have access to the systems through scientific workstations. The system requires users to authenticate their identity through the entry of a user ID and password. The system allows access only to authorized users based on user profiles. The public has access to selected data through the Internet. Sensitive data is protected from public access through a firewall.

II.B.4 How does the agency ensure that the handling of personal information is consistent with relevant government-wide and agency policies?

Security for personal data is restricted by security profiles.

II.C. Government Paperwork Elimination Act (GPEA)

The SAO Scientific Computing project supports the electronic government goals of the Government Paperwork Reduction Act (GPEA) by putting in place a robust IT infrastructure that will enable the Institution to more effectively serve the public electronically. Because the SAO Scientific Computing project primarily supports internal operations and will not place a paperwork burden on the public, the GPEA provisions are not applicable.

PART I: CAPITAL ASSET PLAN AND BUSINESS CASE

Agency: Smithsonian Institution

Bureau: (OIA)

Account Title: Salaries & Expenses

Account Identification Code: 33-0100-0

Program Activity:

Name of Project: STRI Scientific Computing

Unique Project Identifier: 452-00-01-04-10-1002-00

Project Initiation Date: 04/2001

Project Planned Completion Date: 09/2007

This Project is: Initial Concept____ Planning X Full Acquisition____ Steady State____

Mixed Life Cycle ____

Project/useful segment is funded:	Incrementally	Fully <u>X</u>
Was this project approved by OMB for previous Year Budget Cycle?	Yes	No <u>X</u>
Did the Executive/Investment Review Committee approve funding for this project this year?	Yes <u>X</u>	No
Did the CFO review the cost goal?	Yes <u>X</u>	No
Did the Procurement Executive review the acquisition strategy?	Yes <u>X</u>	No
Is this investment included in your agency's annual performance plan or Multiple agency annual performance plan?	Yes <u>X</u>	No
Does the project support homeland security goals and objectives, i.e., 1) improve border and transportation security, 2) combat bio-terrorism, 3) enhance first responder programs; 4) improve information sharing to decrease response times for actions and improve the quality of decision making?	Yes	No <u>X</u>
Is this project information technology (see Section 300.4(e) for a definition)?	Yes <u>X</u>	No
<i>For information technology projects only:</i>		
a. Is this project a financial management system (see section 42.2 for a definition)?	Yes	No <u>X</u>
If so, does this project address a FFMIA compliance area?	Yes	No
If yes, which compliance area? N/A		
b. Does this project implement electronic transactions or record keeping that is covered by the Government Paperwork Elimination Act (GPEA)	Yes	No <u>X</u>
c. Was a privacy impact assessment performed for this project?	Yes	No <u>X</u>
d. Was this project reviewed as part of the FY 2002 Government Information Security Reform Act review process?	Yes	No <u>X</u>
If yes, were any weaknesses found? N/A	Yes	No

Have the weaknesses been incorporated into the agency's corrective action plans? N/A Yes No

e. Has this project been identified as a national critical operation or asset by a Project Matrix review or other agency determination? Yes No X

e.1 If no, is this an agency mission critical or essential service, system, operation, or asset (such as those documented in the agency's COOP Plan), other than those identified above as national critical infrastructures? Yes X No

PART I: SUMMARY OF SPENDING FOR PROJECT STAGES

(\$ in thousands)

Project Costs	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total
Project Support and Analysis ¹	33	35	35	280	280	200	200	1,063
Geographic Information System			265					265
Tropical Biology Database				575				575
Animal Tracking ²				243	160	255	255	913
Environmental Tracking				208				208
Acquisition Budgetary Resources:	33	35	300	1,306	440	455	455	3,024
Outlays:	29	30	266	1,175	553	453	455	2,961
GIS Operations				320	337	373	373	1,403
Tropical Biology Database Ops					383	767	461	1,611
Animal Tracking Ops				21	299	320	442	1,082
Environmental Tracking Ops					85	85	85	255
Maintenance Budgetary Resources:				341	1,104	1,545	1,361	4,351
Outlays:				297	1,004	1,488	1,385	4,174
Total Budgetary Resources:	33	35	300	1,647	1,544	2,000	1,816	7,375
Outlays:	29	30	266	1,472	1,557	1,941	1,840	7,135

I.A. Project Description

The Smithsonian Tropical Research Institute (STRI) has identified promising emerging technologies to support its animal tracking and environmental monitoring projects. The proposed scientific computing

¹ Project support and analysis to evaluate alternatives, develop architecture, and support implementation activities.

² Research scientists using STRI facilities on Barro Colorado Island received a \$243,600 grant from a private foundation and an in-kind donation of \$176,675 in FY 2002 to establish an automated telemetry system at STRI.

applications can contribute significantly to advancing the Institute's research agenda, reducing time and effort in information gathering, and enabling scientists to answer novel questions. STRI plans to incrementally implement its scientific computing infrastructure over a five-year period. Initial phases will focus on establishing a Geographical Information System (GIS) capability. In FY 2005, STRI will establish standard data formats and a tropical biology database and implement a variety of sensor technologies and telemetry to support animal tracking and environmental monitoring. The Smithsonian Executive Committee approved the STRI Scientific Computing project on June 19, 2002.

I.B. Justification

1. How does this investment support your agency's mission and strategic objectives?

The STRI scientific computing project supports the Smithsonian's strategic objectives to (1) strengthen capacity and establish preeminence in science research "centers of excellence" and (2) conduct focused scientific research programs that are recognized for their quality, relevance, and high performance.

The Smithsonian Tropical Research Institute (STRI) is dedicated to studying the past, present, and future of tropical biodiversity and its importance to human welfare. STRI's role as the world's leading tropical research institute is based on the ability of its scientists and the others who use its resources to pose the right questions, gather and process information that leads to advancing knowledge, and disseminate information to the scientific community, students, and the public. STRI must implement a scientific computing infrastructure to continue to attract world-class scientists, improve the quality of data gathered in terms of frequency and precision, use computer software to enhance data analysis, and store data electronically to archive, disseminate, and support future tropical research projects.

The processes that give rise to tropical biodiversity, the factors that determine the maintenance of its richness, and the impact of human activities are not fully understood. They require leveraging information technology to improve data collection and management, as well as data integration for further, value-added analysis. STRI does not currently have a scientific computing infrastructure to advance its research efforts. While much useful data are gathered from the multitude of its research projects, individual scientists maintain the data in a variety of electronic media and on paper. As a result, if a scientist leaves, the data are not generally available for other research projects. In addition, the data are not captured or maintained in formats that facilitate data sharing or dissemination beyond a small community of users.

Many of STRI's research projects accumulate information valuable beyond themselves such as the molecular evolution and Panama Canal monitoring projects. Some baseline data, like species numbers, can be periodically updated. More data about more organisms adds context—depth and breadth—to a researcher's current study. Having baseline data lets scientists set up comparative and pose questions that not yet formulated at the time of the its initial recording.

All STRI research projects need to collect, store, and have effective access to their data. With a centrally managed data repository, research data will be stored in standard formats and made available to support other projects and to disseminate electronically through the World Wide Web.

STRI proposes to implement a Geographic Information System (GIS) to construct an accurate grid and topographic map and to digitize existing spatially referenced data in FY 2004. The precise location of an activity or event is critical to most of the STRI research projects, such as those conducted by the Center for Tropical Forest Science, and for projects in archeology and socio-cultural anthropology. Furthermore, it constitutes baseline data whose worth increases with reuse. STRI scientists also need software for statistical analyses to assist in understanding data gathered, to test hypotheses, and to validate or refute conclusions and findings.

STRI has identified promising emerging technologies to support its animal tracking and environmental monitoring projects. The proposed scientific computing applications can contribute significantly to advancing its research agenda, reducing time and effort in information gathering, and enabling scientists to answer novel questions. As an example, through the use of sensors and telemetry, STRI scientists will be able to reduce the time and cost of conducting field research because new technologies will allow them to track animals precisely and gather sufficient data in a one-year cycle (rainy and dry season) that otherwise would take a three-year cycle to complete. Research on the tropical forest canopy ecology and behavioral ecology also will benefit significantly from them.

Geographical Information System (GIS). A Geographic information System (GIS) organizes geographically referenced information in a visual form. It can combine various map, satellite, and sensor information sources for spatial and temporal analyses that in other ways would be difficult if not unthinkable. A GIS automates most of the archiving and display operations typically required to interpret data obtained in a geographic context. Geographic location constitutes a critical framework for interpreting animal behavior, the health of the environment, and other important knowledge. It is often possible to annotate scientific information with the geographic location to which it corresponds (geo-referencing), which allows better and speedier interpretation of data collected.

Establishing a GIS database using geo-referenced data from multiple research projects creates important baseline data. STRI will be able to overlay on a common geo-referenced data obtained from different projects at different times. Researchers will have online access to data relevant to their research, but collected by other projects, which will improve scientific productivity. Over time, as the geographic database becomes more extensive and refined, and as more and more geo-referenced data become available, researchers will be able to consider a greater number of factors affecting the dynamics of an ecosystem or species under study. The system also will be able to produce illustrations of scientific phenomena for educational and public service purposes.

Tropical Biology Database. Using and sharing data are essential to the performance of scientific work. A robust Tropical Biology Database infrastructure will enable STRI to maximize the use, reuse, and sharing of scientific data collected from multiple projects. A STRI field station and its researchers form a positive feedback loop because more information about more organisms adds context—depth and breadth—to research projects. Having baseline data lets scientists establish comparative studies and pose questions that that could not be framed earlier. Effective use of the Tropical Biology Database will allow projects to move into analysis faster, consider more viewpoints, reduce errors in handling or backing up data, and reduce the effort required to use data. Authorized collaborators and/or the public will be able to gain access via Internet to the same data.

The Tropical Biology Database includes database handling of data (database management systems) and formatting the data according to the logic of the scientific field that generates it (scientific data archiving). STRI will use standard data structures, including cataloguing information and content description information before it is archived, to facilitate subsequent use. STRI maintains large collections of specimens relevant to research in Tropical Biology, plus many data sets of a unique nature and hard to replicate, such as periodic physical measurements on a large number of test plants around the world that are captured through Center for Tropical Forest Science. Other research projects that generate data with long-term value include the Biological Dynamics of Forest Fragments Project, Free Air Carbon Enhancement Project, and the molecular evolution and Panama Canal Monitoring projects.

Animal tracking. Because of their behavioral research components, many projects are interested in tracking animal trajectories or monitoring their physical and biological characteristics in their own environment. For more than a century, monitoring the behavior of individual animals in the wild or the interactions among animals of the same or different species has proven to be one of the most effective means of understanding the ecological and evolutionary processes that gradually paint a picture of the

world in which we live. Unfortunately, most animals do not dwell in accessible terrain and are seldom readily available for observation. The miniaturization of electronic components, however, offers significant opportunities for dramatic improvements in the ability to track animals in the wild. Well-known examples are satellite tracking of radio-collared birds or infrared filming in the wilderness. By combining modern sensor, tracking, and telemetry technologies, STRI can significantly improve research by

- tracking smaller species of animals
- monitoring a richer set of parameters for these species
- providing denser, more continuous, coverage of them.

Smaller animal species account for a large share of the biodiversity of the tropics and its dynamics. In recent years, an impressive array of technology has become available with sufficiently small form-factor and weight to be carried by small animals without undue stress. Similar sensors and systems can be used to monitor aspects of plant species. Down to the range of 50 grams and above, it is currently possible to use the most versatile type of animal-borne sensors, known as *active tracking devices*, which typically combine sensor electronics, data processing, energy source, and transmitter and antenna. For even smaller weights, passive Tag technology, which uses passive electronic components to reflect in recognizable ways signals from small radar units nearby can be used to track in useful ways species down to the size of large insects (*e.g.*, large butterflies). On the biological side it is feasible to measure respiratory rate, pulse, oxygen content in the blood, and muscular activity.

STRI plans to extend the telemetry backbone funded through a private foundation grant and to acquire animal-borne sensors and relay nodes.

Environmental Monitoring. STRI has captured baseline weather measurements spanning more than 25 years. The data can provide a dominant reference framework in the experiments and analysis of most research projects. The ability to monitor more closely and precisely environmental conditions in areas where research is carried out will directly increase the type and quantity of baseline data available to those projects. Environmental data form an important baseline to interpret other data obtained. Variables of interest include simple ones such as temperature and sophisticated ones such as the presence of certain scents. In general, environmental monitoring sensors measure a different set of variables, have different lifespan requirements, and typically cover wider ranges than animal tracking sensors. STRI plans to acquire monitoring equipment and sensors and use the relay nodes and telemetry backbone planned for animal tracking to serve as the data collection infrastructure.

Implementing, operating, and enhancing the STRI scientific computing infrastructure will cost about \$7.3 million during the FY 2004–FY 2008 period, a relatively small amount when compared to the \$88 million that will be spent in the same period by STRI to support tropical research and another \$21.5 million that will be obtained through grants from other institutions for research conducted at STRI. These funds will allow STRI to collect more accurate data and make them available for the long term and to reach wider audiences.

2. How does it support the strategic goals from the President's Management Agenda?

The STRI Scientific Computing project supports the President's Management Agenda E-Government goals to use the Web to provide educational material, to streamline activities, and to improve productivity by research scientists by focusing on their core competencies and mission requirements.

3. Are there any alternative sources in the public or private sectors that could perform this function?

No. Most of the equipment (radio towers, sensors, and laptop computers) must be on-site. Because of STRI's remote location, the tropical biology and GIS databases also need to be on-site.

4. If so, explain why your agency did not select one of these alternatives.

Not applicable.

5. Who are the customers for this project?

Primary customers for the STRI Scientific Computing project are STRI scientists and visiting scientists using its facilities to conduct research related to tropical biology. The scientific community is a customer for the research findings and raw data.

6. Who are the stakeholders of this project?

Key stakeholders for the STRI Scientific Computing project include the Smithsonian Under Secretary for Science, the Director of Smithsonian Tropical Research Institute, STRI scientists and the tropical biology research community.

7. If this is a multi-agency initiative, identify the agencies and organizations affected by this initiative.

Not Applicable.

8. How will this investment reduce costs or improve efficiencies?

STRI anticipates the following benefits:

- *Significant reduction in the effort to gather data.* This will enable STRI or projects hosted at STRI to reduce the labor costs of support staff even as research output increases. In a recent test, STRI scientists found that wireless means of data transfer can reduce by 50% the time and labor it takes to extract data from weather measuring stations for canopy research by avoiding the "climb and connect" procedure required currently.
- *Better and more complete data.* Scientists will be able to gather continuous data on a greater number of variables, from motion to physiology, in many situations where spotty or infrequent observations have been the norm. The mandate of scientists is to figure out nature, and not necessarily to toil. With leadership in electronic data collection, scientific work at STRI will be able to concentrate more on interpretation, making it even more attractive as a place for top scientists and for private grants.
- *Greater data sharing.* Every time data are reused or shared, it multiplies the value of the investment in obtaining them. A strong scientific archiving and database process will mean that more data are kept in a well-organized and well-protected fashion, where it can be readily accessed by a much larger community of interest.

9. List all other assets that interface with this asset.

STRI Scientific Computing will rely on the Smithsonian IT Infrastructure to transfer data.

Have these assets been reengineered as part of this project? Yes No X

I.C. Performance Goals and Measures (All Assets)

The effectiveness of the STRI Scientific Computing Project will be assessed by how well it allows the staff to carry out its mandate for leadership in basic research on the ecology, behavior, and evolution of

tropical organisms and to make that information accessible to the public. Key performance measures include:

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY 2001)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
2006–2008	Focused, first-class science	<p>1. Received \$243,000 in grant funding for scientific computing studies.</p> <p>2. Not possible to monitor small (1–50 gram) species.</p> <p>3. Not possible to combine or reuse data.</p> <p>4. Data collection normally consumes 2–3 years.</p>	<p>1. Increase grant funding for scientific computing.</p> <p>2. Monitor small species (1–50 grams).</p> <p>3. Combine or reuse data across projects, time and place.</p> <p>4. Increase rate of acquiring field data of 3 selected research projects by a factor of three by FY 2008.</p>		<p>1. Increase grant funding to at least \$500,000 per year by FY 2008.</p> <p>2. At least 3 projects monitor small species by FY 2008.</p> <p>3. At least 3 projects combine data across other projects, time and place by FY 2008.</p> <p>4. At least 3 projects have reduced field research data collection time by a factor of 3.</p>	

I.D. Program Management

1. Is there a program manager? Yes. Francisco Rivera has been assigned as the STRI Scientific Computing project manager.
2. Yes. Louis Turner has been assigned as the contracting officer.
3. Is there an Integrated Project Team? Not Yet

3.A. If so, list the skill set represented.

STRI will establish an integrated project team that will follow a disciplined system development life cycle process prescribed by Smithsonian Directive 920 and tailored for the Scientific Computing environment. STRI has established a project team concept that recognizes the complementary roles of scientists, IT staff, and other support staff. Work groups composed of scientists and technical staff will be formed to implement the four initiatives that comprise the Scientific Computing project.

4. Is there a sponsor/owner? Yes, the Director, Smithsonian Tropical Research Institute.

I.E. Alternatives Analysis

1. Describe the alternative solutions you considered for accomplishing the agency strategic goals that this project was expected to address. Describe the results of the feasibility/performance/benefits analysis. Provide comparisons of the returns (financial and other) for each alternative.

For tropical research, the role of scientific computing will be comparable to the role of modern lab instrumentation for biological research. Competence in scientific computing will help STRI remain on the leading edge for the benefit of science. STRI considered two alternatives—continue the current project-based approach and a centrally managed, scientific computing infrastructure. The Smithsonian has not prepared a cost-benefit analysis.

Alternative	Description
Alternative 1	<p><i>Continue project-based approach:</i> This alternative retains the current mode of operation in which STRI has no integrated scientific computing infrastructure. Each research project is primarily responsible for acquiring its own equipment and software and determining data formats and methods for scientific computing. While most scientific research results in publications of an archival nature, it is not common practice to publish all data acquired. Scientists often select representative data only and present it in the way that best conveys the analysis. For example, measurements through time may show up as a plot of mean value and variance as a function of time. Most scientists have no background in electronics, engineering, or computer science, so the time required for assimilating and applying emerging technology competes with time for biological research.</p>

Alternative	Description
Alternative 2	<i>Implement a centrally managed scientific computing infrastructure:</i> The preferred alternative is to incrementally implement a scientific computing infrastructure that will provide a geographical information system, a tropical biology database, an automated telemetry system, and variety of sensors to support animal tracking and environmental monitoring. In this alternative, existing data and data being generated will be selected based on its scientific value, reuse potential, public nature, cleanliness, and completeness. Whenever possible it will be geo-referenced and formatted according to accepted standards. The data will be stored in a commercial database management system accessible via desktop and laptop computers.

2. Summarize the results of your life cycle cost analysis performed for each investment and the underlying assumptions.

Cost Elements	Current Project- Based Approach*	Managed Scientific Computing Infrastructure
Project Support & Analysis		\$ 1,073,000
GIS		\$ 1,678,000
Tropical Biology DB		\$ 2,186,000
Animal Tracking		\$ 1,995,000
Environmental Tracking		\$ 463,000
Total		\$ 7,375,000

*The Smithsonian has not identified the costs of maintaining current project-based approach.

3. Which alternative was chosen and why? Define the Return on Investment (ROI).

The preferred alternative is to implement a centrally managed scientific computing infrastructure. The project-based approach will continue to lead to islands of data that are difficult to reuse in other projects or by other scientists performing future ones. Without central support, it is hard to ensure uniform archival standards among projects or guarantee appropriate backup and sharing procedures or to expect best technology practices to be adopted at a reasonable pace.

3. A. Are there any quantitative benefits that will be achieved through this investment (e.g., systems savings, cost avoidance, stakeholder benefits, etc)?

The Smithsonian has not quantified benefits for this project.

3. B. For alternative selected, provide financial summary, including Net Present Value by Year and Payback Period Calculations:

The Smithsonian has not computed net present value or calculated payback period.

3. What was the date of your cost benefit analysis?

The Smithsonian has not prepared a cost-benefit analysis for this project.

I.F. Risk Inventory and Assessment

There are project-related risks that must be managed before they become problems. The following major project-related risks can adversely affect project cost and schedule:

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of the Date of this Exhibit
July 2002	Organizational and Change Management	Lack of involvement of scientific staff.	Medium	1. From the outset STRI will involve scientists in the requirements assessment from the science to the technology, in defining priorities, and in discussion of benefits to clarify project potential. 2. Scientists will be an integral part of the project's steering committee.	1. Conducted one-day workshop on using IT to support research as part of annual Conference on Tropical Biology. 2. Established Scientific Computing Steering Committee.
N/A	Business				
July 2002	Data/Info	Standard data formats and taxonomies must be identified and used.	Medium	Identify standard data formats and taxonomies in use and select the most appropriate.	Work has not begun.

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of the Date of this Exhibit
July 2002	Technology	Technology does not perform as expected or proves too complex to phase in.	Medium	1. For GIS and Tropical Database technology, use of standard commercial products all but eliminates these risks. 2. Gain interest of world-class technologists by affording them access to a leading edge area of applications for technology.	STRI is implementing a telemetry system through a private foundation grant.
N/A	Strategic				
July 2002	Security	Scientific computing infrastructure will not have adequate intrusion detection and firewalls in place.	Low	SI plans to implement adequate security safeguards.	Work has not begun.
N/A	Privacy				
Sept 2001	Project Resources	The project will not be adequately funded.	Medium	Seek alternative sources of funding.	Work has not begun.

1. What is the date of your risk management plan?

The Smithsonian has not prepared a risk management plan for this project.

C. Acquisition Strategy

1. Will you use a single contract or several contracts to accomplish this project?

The Smithsonian will use multiple contracts to support the STRI Scientific Computing project.

1.A. If multiple contracts are planned, explain how they are related to each other, and how each supports the project performance goals.

The Smithsonian Tropical Research Institute (STRI) plans to acquire commercially available hardware and software products to implement and maintain the scientific computing infrastructure. The Institution plans to take full advantage of streamlining allowed by law and regulations for acquiring and administering federal contracts. The Smithsonian plans to rely on existing federal contracts to acquire commercial software and system integration and independent verification and validation services. For hardware acquisition, the Smithsonian plans to use mechanisms such as General Services Administration (GSA) schedules, interagency agreements, and competitive procurements. For software seat/site license agreements, the Smithsonian plans to use full and open competition and acquisition through interagency agreements, small businesses, GSA schedules, and other sources. For analysis and project support, STRI has contracted with *Centauri Technologies Corporation*.

1. What type(s) of contract(s) will you use?

Fixed price.

2.A. For cost reimbursement contracts, define risk not sufficiently covered by the risk mitigation plan to require this type of contract.

Not applicable.

3. Will you use financial incentives to motivate contractor performance? No.

4. Will you use competition to select suppliers?

Yes, hardware, software, and services will be provided via government-wide contracts or through Smithsonian-competed contracts.

5. Will you use commercially available or COTS products, or custom-designed products?

The Smithsonian will be using commercially available products.

6. What is the date of your acquisition plan?

The Institution has not prepared a formal acquisition plan.

7. How will you ensure Section 508 compliance?

The laptop equipment and the STRI website are section 508 compliant.

I.H. Project and Funding Plan

The information required by this section will be provided by your earned value management system.

The Smithsonian is not able to implement an earned value management system until FY 2005 after deployment of the Projects and Time and Labor modules of the Enterprise Resource Planning System.

I.H.1. Description of Performance Based Management System

The Smithsonian will use *Microsoft Project Central* to monitor and manage project performance.

I.H.2. Original Baseline

Cost and Schedule Goals: Original Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Project Support & Analysis	11/2001	09/2008		1,063	Smithsonian
GIS	10/2003	09/2004	365	265	Smithsonian
Tropical Biology Database	10/2003	09/2004	365	575	Smithsonian
Animal Tracking	03/2002	09/2008	2,190	913	Smithsonian
Environmental Tracking	10/2005	09/2006	365	208	Smithsonian
Completion date: 09/2008			Total cost estimate at completion:* 3,024		

*Estimate for completion is for development only. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

I.H.3. Proposed baseline/current baseline

This is a new project. Original baseline is the current baseline.

I.H.4. Actual performance and variance from OMB approved baseline

This is a new project.

Part II: ADDITIONAL BUSINESS CASE CRITERIA FOR INFORMATION TECHNOLOGY**II. A. Enterprise Architecture****II.A.1 Business**

- A. Is this project identified in your agency's enterprise architecture? Yes
- B. Explain how this project conforms to your departmental (entire agency) enterprise architecture.

The Smithsonian Institution completed a baseline inventory of automated information systems and IT products in March 2001 to establish an enterprise IT architecture and deploy a managed IT infrastructure. Based on an analysis of the IT baseline, the Smithsonian defined a conceptual target IT architecture in July 2001 and published a Technical Reference Model in January 2002. The model identifies a comprehensive set of information technology standards, services, protocols, and products that define the target technical environment for the acquisition, development, and support of Smithsonian automated information systems. The Technical Reference Model is based on the most recent version of the Application Portability Profile of the National Institute of Standards and Technology. The Institution has selected, where appropriate, information technology components that best support an open system environment. The underlying hardware and software platforms for the GIS and Tropical Biology Database are included in the Smithsonian enterprise IT architecture. Telemetry and sensor technologies will be added to the Technical Reference Model as they evolve.

- C. Identify the Lines of Business and Sub-Functions within the Federal Enterprise Architecture Business Reference Model that will be supported by this initiative.

The STRI Scientific Computing project will support the scientific research and development line of business.

D. Briefly describe how this initiative supports the identified Lines of Business and Sub-Functions of the Federal Business Architecture.

The STRI Scientific Computing project will support the tropical biology research conducted at the Smithsonian Tropical Research Institute.

E. Was this project approved through the EA Review committee at your agency?

Yes. The Executive Budget Committee approved the STRI Scientific Computing project on June 19, 2002.

F. What are the major process simplification/reengineering/design projects that are required as part of this initiative? None required.

G. What are the major organization restructuring, training, and change management projects that are required?

There are no major organization restructuring or change management projects.

H. What are the Agency lines of business involved in this project?

Scientific Research

I. What are the implications for the agency business architecture?

All four proposed initiatives will help scientists using STRI facilities to pose the right questions, gather and process information that eventually leads to advancing knowledge and disseminating the information to the scientific community, students and the general public. The technology applied in the field for animal tracking and for environmental monitoring will generate important data, a good deal of which will be included in the Tropical Biology Database and be geo-referenced in the Geographic Information System.

II.A.2 Data

A. What types of data will be used in this project?

Biological and environmental data.

B. Does the data needed for this project already exist at the Federal, State or Local level? If so, what are your plans to gain access to that data?

Data will be derived from research conducted at STRI. There are multiple standard data formats and taxonomies in use at an international level. STRI will work with the NSF bioinformatics initiative to select the most appropriate data standard for dealing with bioinformatics data. STRI will use the Federal Geographic Data Committee standards for the GIS.

C. Are there legal reasons why the data can't be transferred? If so, what are they and did you address them in the barriers and risk sections above. Not applicable.

D. If this initiative processes spatial data, identify planned investments for spatial data and demonstrate how the agency ensures compliance with the Federal Geographic Data Committee standards required by OMB Circular A-16.

STRI will use the Federal Geographic Data Committee standards for the GIS.

II.A.3 Application and Technology

A. Discuss this initiative/project in relationship to the application and technology layers of the EA. Include a discussion of hardware, applications, infrastructure, etc.

The STRI Scientific Computing project primarily supports the Application Platform Entity Service of the Technical Reference Model such as data management service, system administration, operating system, human computer interface service, and security services. Applications supported are statistical analyses and GIS. The project also includes External Environment components such as communications and storage media.

B. Are all of the hardware, applications, and infrastructure requirements for this project included in the EA Technical Reference Model? If not, please explain.

Telemetry network and sensors will be added in a future version of the TRM. All other components are in the current version of the TRM.

II.B. Security and Privacy

II.B.1 How is security provided and funded for this project?

STRI Scientific Computing applications will maintain critical information on database systems and on data archiving devices that will require a high degree of data integrity. The Smithsonian protects sensitive data from unauthorized access and/or disclosure and assures data integrity when stored in electronic form, as well as security from unauthorized alteration or modification. The data produced by the systems will be controlled with respect to access, authority to modify, and the ability to operate within the systems. STRI staff will have access to the systems through desktop workstations. The systems will require users to authenticate their identity through the entry of a user ID and password and allow access only to authorized users based on user profiles. The public will have access to selected data through the Internet. Sensitive data will be protected from public access through a firewall. STRI will document security requirements in a Security Plan. The plan will capture security safeguards now in place and planned for scientific computing applications.

A. What is the total dollar amount allocated to security for this project?

Security costs are included in the system development costs and not broken out separately.

II.B.2 Does the project meet the following security requirements of the Government Information Security Reform Act, OMB policy, and NIST guidance?

A. Does the project have an up-to-date security plan that meets the requirements of OMB policy and NIST guidance? What is the date of the plan?

The STRI Scientific Computing project security plan will be completed in September 2003.

B. Has the project undergone an approved certification and accreditation process? No

C. Have the management, operational, and technical security controls been tested for effectiveness?
No

D. Have all system users been appropriately trained in the past year, including rules of behavior and consequences for violating the rules?

No. However, the Institution published Smithsonian Directive 931, *Use of Computers and Networks*, on August 5, 2002. The Directive prescribes rules of employee behavior and identifies potential consequences. The Institution will implement an on-line computer awareness tutorial in FY 2003 and require employees to take the tutorial annually.

E. How has incident-handling capability been incorporated into the system, including intrusion detection, monitoring and audit log reviews?

The Smithsonian's Information System Security Officer manages the response to major computer security incidents, which are reported to the FedCIRC Operation Center. The FY 2004 budget request includes funding to implement an adequate intrusion detection system.

F. Is this system operated by contractors either on-site or at a contractor facility? If yes, does any such contract include specific security requirements required by law and policy? How are contractor security procedures monitored, verified, and validated by the agency?

The Smithsonian will use contractors to augment in-house staff to develop and operate the systems on-site. Contractors will undergo a NAC background check.

II.B.3 How does the agency ensure the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access?

The data produced by the system will be controlled with respect to access, authority to modify, and ability to operate within the system. STRI staff will have access to the systems through desktop workstations, which will require users to authenticate their identity through the entry of a user ID and password. The systems will allow access only to authorized users based on user profiles. The public will have access to selected data through the Internet. Sensitive data will be protected from public access through a firewall. The Smithsonian has designed a security infrastructure approach consistent with E-Gov Enterprise Architecture Guidance that will be implemented in FY 2004 and FY 2005 through this project.

II.B.4 How does the agency ensure that the handling of personal information is consistent with relevant government-wide and agency policies?

Security for personal data is restricted by security profiles.

II.C. Government Paperwork Elimination Act (GPEA)

The STRI Scientific Computing project supports the electronic government goals of the Government Paperwork Reduction Act (GPEA) by putting in place a robust IT infrastructure that will enable the Institution to more effectively serve the public electronically. Since the STRI Scientific Computing project primarily supports internal operations and will not place a paperwork burden on the public, the GPEA provisions are not applicable.

PART I: CAPITAL ASSET PLAN AND BUSINESS CASE

Agency: Smithsonian Institution

Bureau: (OIA)

Account Title: Salaries and Expenses

Account Identification Code: 33-0100-0

Program Activity:

Name of Project: Art Collections Information System (ArtCIS)

Unique Project Identifier: 452-00-01-02-01-1001-00

Project Initiation Date: 5/1995

Project Planned Completion Date: 09/2008

This Project is: Initial Concept _____ Planning _____ Full Acquisition _____ Steady State _____

Mixed Life Cycle XProject/useful segment is funded: Incrementally _____ Fully XWas this project approved by OMB for previous Year Budget Cycle? Yes X NoDid the Executive/Investment Review Committee approve funding for this project this year? Yes X NoDid the CFO review the cost goal? Yes X NoDid the Procurement Executive review the acquisition strategy? Yes X NoIs this investment included in your agency's annual performance plan or Multiple agency annual performance plan? Yes X NoDoes the project support homeland security goals and objectives, i.e., 1) improve border and transportation security, 2) combat bio-terrorism, 3) enhance first responder programs; 4) improve information sharing to decrease response times for actions and improve the quality of decision making? Yes No XIs this project information technology (see Section 300.4(e) for a definition)? Yes X No

For information technology projects only:

a. Is this project a financial management system (see section 42.2 for a definition)? Yes No X

If so, does this project address a FFMIA compliance area? Yes No X

If yes, which compliance area?

b. Does this project implement electronic transactions or record keeping that is covered by the Government Paperwork Elimination Act (GPEA)? Yes No X

c. Was a privacy impact assessment performed for this project? Yes No Xd. Was this project reviewed as part of the FY 2002 Government Information Security Reform Act review process? Yes X No

If yes, were any weaknesses found? Yes X No

Have the weaknesses been incorporated into the agency's corrective action plans? Yes X No

e. Has this project been identified as a national critical operation or asset by a Project Matrix review or other agency determination? Yes No X

If yes, were any weaknesses found? Yes X No

Have the weaknesses been incorporated into the agency's corrective action plans? Yes X No

f. Has this project been identified as a national critical operation or asset by a Project Matrix review or other agency determination? Yes No X

If yes, were any weaknesses found? Yes X No

Have the weaknesses been incorporated into the agency's corrective action plans? Yes X No

g. Has this project been identified as a national critical operation or asset by a Project Matrix review or other agency determination? Yes No X

If yes, were any weaknesses found? Yes X No

Have the weaknesses been incorporated into the agency's corrective action plans? Yes X No

e.1 If no, is this an agency mission critical or essential service, system operation, or asset (such as those documented in the agency's COOP Plan), other than those identified above as national critical infrastructures?

Yes ☒ No

SUMMARY OF SPENDING FOR PROJECT STAGES

(\$ in thousands)

Project Costs	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total
Data Content ¹	20	300	389	389	405	422	394	410	2729
Digitization ²	46	425	433	450	466	484	502	520	3326
Acquisition Budgetary Resources:	66	725	822	839	871	906	896	930	6055
Outlays:	66	631	809	837	867	901	898	925	5934
Application SW Maintenance ³	591	552	560	604	679	712	731	750	5179
IT Operations ⁴	178	75	77	80	83	86	89	92	760
Maintenance Budgetary Resources:	769	627	637	684	762	798	820	842	5939
Outlays:	769	545	636	678	752	793	817	840	5830
Total Budgetary Resources:	835	1352	1459	1523	1633	1704	1716	1772	11994
Outlays:	835	1176	1445	1515	1619	1694	1715	1765	11764

I.A. Project Description

The Art Collections Information System (ArtCIS) has been fully operational in the six art museums since December 1998. Text and image information has been captured in electronic form, organized in databases, made accessible to art museum staff to help manage collections, and made available to the public for educational and recreational purposes. In individual art museums researchers, curators, registrars, and managers have access to rich and consistent information about collections from desktop computers. During the planning period, each museum will work to enrich registration-level records with research findings, curatorial notes that previously have been separated and digital images.

I.B. Justification

1. How does this investment support your agency's mission and strategic objectives?

ArtCIS supports the Smithsonian's strategic objectives to judiciously build and refine, care for, and manage the national collections for current and future generations and achieve management excellence. Specifically, it supports an Institutional strategy to implement and maintain state-of-the-art collections management systems.

¹ Data Content - enriching registration-level records with research findings and curatorial notes.

² Digitization - creating digital images of art objects and linking to object information.

³ Includes application software costs such as licensing fees, associated staff and contractor costs.

⁴ Includes hardware replacement and maintenance, systems software, and operations staff.

The Smithsonian Institution has stewardship responsibility for the collections it holds on behalf of the American public. This responsibility, as well as legal issues inherent in relationships with donors, artists, vendors, and others, demand that collections be managed to the highest standards of security and safety and in a manner that provides the greatest benefit to the public. With this mandate, the six Smithsonian art museums collaborated to develop a requirements document for a collections information system (CIS) to serve the internal collections management needs and provide easy access for the public to the information and images of the collections—more than 350,000 works of art—that the Institution holds in trust for the Nation. *The Museum System (TMS)*, a commercial software product by Gallery Systems, was selected by the six art museums for its superior functionality, its ease of use, and its imaging capability.

TMS consists of nine modules: objects, constituents, exhibitions, loans, shipping, bibliography, events, sites, and media. Digital imaging and image management allow linking any number of images and other media files to records in each module. The thesaurus feature allows users to apply controlled vocabularies of their own creation, as well as the Getty Art and Architecture Thesaurus (AAT) and the Thesaurus of Geographic Names (TGN). In coordinating and standardizing curatorial data entry and maintaining registration information, *TMS* provides uniform access to collections information, including images where they exist for internal research and management and for external audiences.

Records exist in *TMS* for all objects in art museum collections. However, many of these records are skeletal and lack images. Collating and entering collections information, which is widely distributed throughout the museums in non-automated records, is a mammoth task that will require contract staff to complete. Funds for digitizing images also are needed on a continuing basis.

Since acquiring and implementing *The Museum System*, the art museums' collaborative—ArtCIS—which consists of representatives of all six museums and the Office of the Chief Information Officer, has continued to meet regularly to share information, best practices, and solutions to problems, thereby moving all the museums forward in their implementation far more quickly than each could achieve on its own. In addition, the use of *TMS* by multiple units has contributed to Smithsonian goals of standardizing procedures and terminology. Through ArtCIS, too, the Smithsonian's influence on the vendor to develop desired features and enhancements is maximized.

ArtCIS application servers will be consolidated in FY 2004 as part of the Managed IT Infrastructure project. The planned architecture will incorporate proper infrastructure security.

2. How does it support the strategic goals from the President's Management Agenda?

ArtCIS supports the President's Management Agenda goals to adopt best commercial practices to reduce operating costs and make it simpler for employees to do their jobs and to use the web to provide educational material to the public.

3. Are there any alternative sources in the public or private sectors that could perform this function?

No. Managing the Institution's collections is a core mission of the Smithsonian.

4. If so, explain why your agency did not select one of these alternatives.

5. Who are the customers for this project?

Customers for ArtCIS include museum curators, museum specialists, registrar, visiting scholars, research community, other museums and educational institutions, and the public.

6. Who are the stakeholders of this project?

Key stakeholders for ArtCIS include the Smithsonian Under Secretary for American Museums and National Programs, the Director, International Art Museums, the Director of the Smithsonian American Art Museum, the Director of the National Portrait Gallery, the Director of the Cooper-Hewitt Design Museum, the Director of the African Art Museum, the Director of the Hirshhorn Museum and Sculpture Garden, and the Director of the Freer Gallery of Art and Arthur M. Sackler Gallery.

7. If this is a multi-agency initiative, identify the agencies and organizations affected by this initiative.
N/A

8. How will this investment reduce costs or improve efficiencies?

The ease with which data can be entered and accessed has resulted in object records that are significantly enriched in information. Where object information once resided in a variety of dispersed paper records, available only to those staff members whose files held it, such information now is being gathered and added to ArtCIS records, which are available to all. Moreover, the availability of ArtCIS records across each museum for education, public affairs, development, and administrative staff has intensified the demand for information; new and creative applications using the information have been developed. The uses, constituents (users), and benefits of the ArtCIS, are detailed in the following table.

Use of ArtCIS Data	Major Constituent(s) (Users)	Benefit
Collections Tracking & Inventory	Museum Management & Staff	Full physical and legal control of collections; inventories can be completed more reliably and rapidly.
Collections Management	Museum Management & Staff	Information about registration, preservation, storage and collections documentation activities recorded in a standard consistent manner; easily accessible information facilitates efficient work processes; improved communication about collections internally and externally.
Collections-Based Scholarly Research	Museum Curatorial Staff, National/International Scholars, Specialized Public Audiences	CIS allows individual users to rapidly search collections, compare/contrast multiple objects, and research teams to efficiently share results, thus enriching research and improving accuracy and analysis. Art collections base of knowledge grows for use by future generations and as basis for public outreach.
Education	Museum Staff, Educators, Students	ArtCIS allows users to access collections information to develop educational materials for K-12, college and post-graduate students; museum visitors on-site and off; and other learners.
Public Outreach	General Public	ArtCIS will expand access to art collections information to the interested public via the World-Wide Web.

Use of ArtCIS Data	Major Constituent(s) (Users)	Benefit
On-Site Exhibition Development	Museum Management and Staff	ArtCIS will provide direct rapid access to collections information to efficiently and effectively manage exhibition planning and production.

9. List all other assets that interface with this asset.

ArtCIS relies on the Smithsonian IT Infrastructure to transfer data and to make information available to the public via the web.

Have these assets been reengineered as part of this project? Yes ____ No X.

I.C. Performance Goals and Measures (All Assets)

The effectiveness of ArtCIS will be assessed as follows by how well it allows the staff to carry out its mandate to manage collections and make them accessible to the public.

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY 2001)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
2002–2008	Management Excellence	1. 305,360 accessioned objects in ArtCIS TMS databases.	1. ArtCIS museums have full legal and physical control over accessioned objects with TMS records that include at least object name, accession number, and location.	1. 328,303 accessioned objects	1. Increase the number of objects in ArtCIS collections with basic identification information by 1% annually.	1. Increased 7.5%
		2. 47,027 objects meet unit cataloguing standards	2. Object records meet unit cataloguing standards.	2. 52,796 records meet unit cataloguing standards.	2. Increase the number of catalogued records in TMS by 25% annually.	2. Increased 12%
		3. 63,424 digital images are in TMS. 45,758 object records have at least 1 digital image.	3. Digitize images of the collection	3. 80,545 digital images in TMS. 59,949 objects have at least 1 image.	3. Increase the number of images in TMS by 25%. Increase the number of records with at least 1 image by 25%.	3. Increased 27%. Increased 31%.
	Public Impact	4. 48,031 records are on the Web. 5,060 Web records have images.	4. Increase access to art collections data provided to offsite visitors via the Web.	4. 55,860 records on the Web. 12,529 Web records have images.	4. Increase the number of object records available on the Web by 15%. Increase the number of images available on the Web by 15%.	4. Increased 16%. Increased 150%.

I.D. Program management

1. Is there a program manager? Yes. George Meyer has been assigned as the ArtCIS project manager.
2. Is there a contracting officer assigned to the project? If so, what is his/her name? Yes, Melissa Howard has been assigned as the contracting officer.
3. Is there an Integrated Project Team? Yes.
- 3.A. If so, list the skill set represented.

The project team follows a disciplined system development life cycle process prescribed by Smithsonian Directive 920 and tailored for operating, maintaining, and enhancing a commercial software product. In order to effectively operate, maintain, and enhance *TMS*, the Institution has established a project team concept that recognizes the complementary roles of curators, collection managers, and IT staff. The six ArtCIS museums have formed a Steering Committee to oversee programmatic and functional aspects of CIS and interact with staff of the Office of the Chief Information Officer assigned to the ArtCIS project. Work groups will be formed to implement additional modules, databases, and system upgrades and enhancements.

4. Is there a sponsor/owner? Yes, the Director, International Art Museums.

I.E. Alternatives Analysis

1. Describe the alternative solutions you considered for accomplishing the agency strategic goals that this project was expected to address. Describe the results of the feasibility/performance/benefits analysis. Provide comparisons of the returns (financial and other) for each alternative.

Based on prior experience with custom software development and the emergence in the international museum community of several firms providing off-the-shelf collections management software, the ArtCIS Committee determined that implementing a commercial collections management software product was preferable to developing a new in-house system or maintaining legacy in-house systems. The following alternatives were considered in this analysis:

Alternative	Description
Alternative 1	<i>Implement a commercial collections management software product.</i> This was the preferred alternative and included purchasing a commercial software product and a designated server, obtaining contractual services to integrate the new server and to convert legacy data into the new system, and to provide training, with quality assurance and independent testing performed in-house by the project team staff. By implementing a commercial software product, the art museums minimized their risk by acquiring a fully developed and functional system.

Alternative 2	<i>Maintain current systems:</i> Each art museum operated and maintained its own custom-developed system to support collections management. The legacy systems used outdated programming languages and operating systems, lacked documentation, were poorly coded, were not scalable, and could not be modified or integrated to support the increased demand for services and data quality. The legacy systems had limited functionality and no imaging capability. In several instances, they were impossible to maintain because the programmers who had originally put them in place had left the Institution. Furthermore, the art museums, individually and collectively, lacked staff capable of developing new systems with the required level of sophistication. Finally, time would be lost in developing a new system, even by an experienced contractor.
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2. Summarize the results of your life cycle cost analysis performed for each investment and the underlying assumptions.

The Institution did not perform a life cycle cost analysis for this project.

3. Which alternative was chosen and why? Define the Return on Investment (ROI).

The Institution selected Alternative—*Implement a commercial collections management software product*. In implementing a commercial software product the art museums minimized their risk by acquiring a fully developed and functional system and complied with federal IT management guidance that encourages the acquisition of commercial software products over developing application software.

3. A. Are there any quantitative benefits that will be achieved through this investment (e.g., systems savings, cost avoidance, stakeholder benefits, etc)?

The Institution did not quantify benefits that will be achieved by automating collections management.

3. B. For alternative selected, provide financial summary, including Net Present Value by Year and Payback Period Calculations:

The Institution did not compute net present value by year or calculate the payback period.

4. What was the date of your cost benefit analysis? The Institution did not prepare a cost-benefit analysis.

I.F. Risk Inventory and Assessment

ArtCIS is fully operational and supported through voluntary agreement among multiple Smithsonian units. Inherent risks are associated primarily with failure to adequately support the continued operation and enhancement of ArtCIS. Those risks can be codified as follows:

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
N/A	Organizational and Change Management				
N/A	Business				
N/A	Data/Info				
Nov 2001	Technology	SI will not have a robust IT infrastructure in place	Medium	SI has initiated complementary project to modernize its infrastructure incrementally through FY 2005, which that museum staff can access the ArtCIS.	SI has increased contractor support for help desk and network services, increased bandwidth to Web, and upgraded network backbone switches.
March 2000	Strategic	Art museums will not have a modern collections management system in place.	Low	ArtCIS project meets one of the Secretary's strategic goals to modernize collections management systems.	ArtCIS has been in operation since Dec 1998.
July 2002	Security	The IT infrastructure will not have adequate intrusion detection and firewalls in place.	Medium	SI plans to implement an adequate intrusion detection system and redesigned firewall in FY 2004.	SI has reduced the number of services passing through the existing firewall and strengthened passwords.
N/A	Privacy	ArtCIS does not contain Privacy Act data.			
Nov 2001	Project Resources	ArtCIS project will not be adequately funded.	Low	1. Seek other sources of funds. 2. Defer data capture and content enhancement.	ArtCIS has been funded to date.

1. What is the date of your risk management plan? The Institution did not prepare a risk management plan for ArtCIS.

I.G. Acquisition strategy

1. Will you use a single contract or several contracts to accomplish this project?

The Smithsonian is using multiple contracts to support the ArtCIS project.

1.A. If multiple contracts are planned, explain how they are related to each other, and how each supports the project performance goals.

The ArtCIS Management Committee completed a requirements analysis and market survey of commercial collections management software products in 1995. The Institution used full and open competition to acquire *The Museum System (TMS)* and system integration and data migration services in September 1997. The Institution relies on existing Federal contracts and GSA schedules to acquire equipment and other commercial software products to implement, operate, maintain, and enhance *TMS* in the six ArtCIS museums.

2. What type(s) of contract(s) will you use? Fixed price.

2.A. For cost reimbursement contracts, define risk not sufficiently covered by the risk mitigation plan to require this type of contract. N/A

3. Will you use financial incentives to motivate contractor performance? No.

4. Will you use competition to select suppliers? The Institution acquired *TMS* and system integration and data migration services competitively and plans to use existing government-wide contracts GSA schedule for other need hardware, software, and services.

5. Will you use commercially available or COTS products, or custom-designed products? The Smithsonian has purchased the *TMS* commercial collections management software package.

6. What is the date of your acquisition plan? The Institution completed a market survey and requirements analysis in July 1996.

7. How will you ensure Section 508 compliance?

The *TMS* commercial software product, acquired prior to the effective date of Section 508, has many features in compliance with Section 508, but the entire product, as acquired from *Gallery Systems*, is not in complete compliance. The software vendor recently released a Web-based Section 508 compliant version that the Institution will implement in FY 2003. Additionally, the Smithsonian ensures its electronic and information technology is accessible to people with disabilities through participation in the Computer Accommodation Program with the U.S. Department of Defense.

I.H. Project and Funding Plan

The information required by this section will be provided by your earned value management system.

The Smithsonian is not able to implement an earned value management system until FY 2005 after deployment of the Projects and Time and Labor modules of the Enterprise Resource Planning System.

I.H.1. Description of Performance Based Management System

To help assure that requirements are being met, the ArtCIS Management Committee monitors progress and interim results of the ArtCIS enhancement initiatives and takes action when needed. The Committee is responsible for defining and validating functional requirements, for making resources available to support ArtCIS initiatives, and for reviewing the progress of ArtCIS initiatives to ensure that functional requirements are being satisfied in a timely and cost-effective manner. ArtCIS work groups perform independent acceptance testing of all ArtCIS enhancements. To help manage and control the project, the ArtCIS project manager prepares detailed project plans that contain specifics on such tasks as data migration, integration, training, testing, implementation and other related activities needed to help assure the transition to production system operation. The Institution uses *Microsoft Project Central* to track schedule performance against project plan milestones. This visibility helps both the ArtCIS Management Committee and the project manager identify problem areas and take corrective actions when actual results deviate significantly from plans. The ArtCIS Project Manager ensures that the necessary information is provided in a timely manner and entered into the project management control system. These mechanisms provide visibility into the ArtCIS project's functional and technical characteristics, as well as establish management control points for assessing project schedule and quality.

I.H.2. Original Baseline

Cost and Schedule Goals: Original Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Data Content Enhancement	01/1999	N/A	N/A	2,729	Smithsonian
Digitization	01/1999	N/A	N/A	3,326	Smithsonian
Completion date: 09/2008*			Total cost estimate at completion: \$6,055**		

*The estimated completion date represents the end of the planning period. Data content enhancement and digitization will continue until all collections data has been captured, enhanced, and linked to a digital image.

**Estimate for completion is for data content enhancement and digitization only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

I.H.3. Proposed baseline/current baseline

There has been no change to the original baseline.

I.H.4. Actual performance and variance from OMB approved baseline

Comparison of OMB-Approved Baseline and Actual Outcome Phase/Segment/Module of a Project									
Description of Milestone	OMB-Approved Baseline					Actual Outcome			
	Schedule			Planned Cost (\$ 000)	Source of Funds	Schedule		Percent Complete	Actual Cost
	Start Date	End Date	Duration (in days)			Start Date	End Date		
Data Content	01/99	05/02	N/A	2,729	SI	01/99	TBD		
Digitization	01/99	09/07	N/A	3,326	SI	01/99	TBD		
Completion date: 09/2008*				6,055					
Completion date: OMB-approved baseline: 09/2008*					Estimated completion date: 09/2008*				
Total cost: OMB-approved baseline: 6,055**					Estimate at completion: 6,055**				

* The estimated completion date represents the end of the planning period. Data content enhancement and digitization will continue until all collections data has been captured, enhanced, and linked to a digital image(s).

** Estimate for completion is for data content enhancement and digitization only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

PART II: ADDITIONAL BUSINESS CASE CRITERIA FOR INFORMATION TECHNOLOGY**II. A. Enterprise Architecture****II.A.1 Business**

A. Is this project identified in your agency's enterprise architecture? Yes

B. Explain how this project conforms to your departmental (entire agency) enterprise architecture.

ArtCIS supports the major business line of the Institution – collections management. The Smithsonian Institution completed a baseline inventory of automated information systems and IT products in March 2001 as part of a companion IT project to establish an enterprise IT architecture and deploy a managed IT infrastructure. Based on an analysis of the IT baseline, the Smithsonian defined a conceptual target IT architecture in July 2001 and published a Technical Reference Model (TRM) in January 2002. The TRM defines a comprehensive set of information technology standards, services, protocols, and products that define the target technical environment for the acquisition, development, and support of Smithsonian application systems, enterprise architecture, and the supporting IT infrastructure. The Technical Reference Model is based on the most recent version of the National Institute of Standards and Technology's Application Portability Profile. The Institution has selected, where appropriate, information technology components that best support an open system environment for operating its application systems. The underlying hardware and software platforms that ArtCIS operates on are consistent with the Smithsonian enterprise IT architecture.

C. Identify the Lines of Business and Sub-Functions within the Federal Enterprise Architecture Business Reference Model that will be supported by this initiative.

ArtCIS supports the Internal Operations and Infrastructure and the Education lines of business and the sub-functions of Supply Chain Management (inventory control of collections).

D. Briefly describe how this initiative supports the identified Lines of Business and Sub-Functions of the Federal Business Architecture.

ArtCIS supports the functions of collections tracking and Inventory, collections management and conservation, collections-based research, curriculum development for K-12 and above, public outreach through the Web, and exhibit planning and development.

E. Was this project approved through the EA Review committee at your agency?

No. The Chair, ArtCIS Management Committee, approved the project in 1994. The Smithsonian Executive Budget Committee has approved funding for this project.

F. What are the major process simplification/reengineering/design projects that are required as part of this initiative? Through ArtCIS, the art museums have standardized and defined business processes for collections management, registration activities such as acquisitions, loans in, loans out, and insurance, and curatorial data entry.

G. What are the major organization restructuring, training, and change management projects that are required? There are no major organization restructuring or change management projects. Training is part of the ArtCIS project.

H. What are the Agency lines of business involved in this project?

Collections Management and Public Impact.

I. What are the implications for the agency business architecture?

Through the ArtCIS, the Institution's art museums support collections-related research, exhibitions, publications, Web content, and educational programming, as well as public access to collections information. ArtCIS supports internal and worldwide research, while also helping to inventory and manage the art museum's holdings and automate processes related to custody and legal ownership of collections.

II.A.2 Data

A. What types of data will be used in this project? Collections management and research data.

B. Does the data needed for this project already exist at the Federal, State or Local level? If so, what are your plans to gain access to that data?

The data used in ArtCIS is internal Smithsonian data. It does not exist at the Federal, State or Local level.

C. Are there legal reasons why the data can't be transferred? If so, what are they and did you address them in the barriers and risk sections above. N/A

D. If this initiative processes spatial data, identify planned investments for spatial data and demonstrate how the agency ensures compliance with the Federal Geographic Data Committee standards required by OMB Circular A-16. N/A

II.A.3 Application and Technology

A. Discuss this initiative/project in relationship to the application and technology layers of the EA. Include a discussion of hardware, applications, infrastructure, etc.

ArtCIS is a business application that supports the primary business line of the Institution – collections management. The hardware platform, database, and system components are contained in the Technical Reference Model.

B. Are all of the hardware, applications, and infrastructure requirements for this project included in the EA Technical Reference Model? Yes. If not, please explain

II.B. Security and Privacy

II.B.1 How is security provided and funded for this project?

ArtCIS maintains critical information on collections and collections management activities and requires a high degree of data integrity. ArtCIS protects sensitive data from unauthorized access and/or disclosure, assures integrity of data stored in electronic form, and protects data from unauthorized alteration or modification. ArtCIS is controlled with respect to access, authority to modify, and ability to operate it. Museum staff access the system through desktop workstations. ArtCIS requires users to authenticate their identity through the entry of a user ID and password. The system allows access only to authorized users based on user profiles. The Institution will document security requirements in a *Security Plan*. The plan will **Error! Bookmark not defined.** capture security safeguards now in place and planned for ArtCIS. The ArtCIS Steering Committee, with the guidance and assistance of the Chief Information Officer (CIO), will ensure that adequate controls are in place to assure the continued security and integrity of ArtCIS data.

A. What is the total dollar amount allocated to security for this project? Security costs are included in the system operations costs and not broken out separately.

II.B.2 Does the project meet the following security requirements of the Government Information Security Reform Act, OMB policy, and NIST guidance?

A. Does the project have an up-to-date security plan that meets the requirements of OMB policy and NIST guidance? What is the date of the plan?

The ArtCIS security plan will be complete in July 2003.

B. Has the project undergone an approved certification and accreditation process? No

C. Have the management, operational, and technical security controls been tested for effectiveness? Yes

D. Have all system users been appropriately trained in the past year, including rules of behavior and consequences for violating the rules? No. The Institution published Smithsonian Directive 931 *Use of Computers and Networks* on August 5, 2002. The Directive prescribes rules of employee behavior and identifies potential consequences. The Institution will implement an on-line computer awareness tutorial in FY 2003 and require employees to take the tutorial annually.

E. How has incident-handling capability been incorporated into the system, including intrusion detection, monitoring and audit log reviews? The Smithsonian's Information System Security Officer manages the response to major computer security incidents. Incidents are reported to the FedCIRC Operation Center. The FY 2004 budget request includes funding to implement an adequate intrusion detection system.

F. Is this system operated by contractors either on-site or at a contractor facility? No. If yes, does any such contract include specific security requirements required by law and policy? How are contractor security procedures monitored, verified, and validated by the agency?

II.B.3 How does the agency ensure the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access?

ArtCIS does not maintain Privacy Act data.

II.B.4 How does the agency ensure that the handling of personal information is consistent with relevant government-wide and agency policies?

Not applicable. ArtCIS does not contain personal information.

II.C. Government Paperwork Elimination Act (GPEA)

ArtCIS supports the electronic government goals of the Government Paperwork Reduction Act (GPEA). Through ArtCIS, the Institution's art museums have replaced cumbersome manual paper processes and reduced the handling and usage of its massive paper legal files and photographs through digitization. Since CIS primarily supports collections management, research and educational outreach needs and will not place a paperwork burden on the public, the GPEA provisions are not applicable.

PART I: CAPITAL ASSET PLAN AND BUSINESS CASE

Agency: Smithsonian Institution

Bureau: (OIA)

Account Title: Salaries and Expenses

Account Identification Code: 33-0100-0

Program Activity:

Name of Project: NMAH Collections Information System

Unique Project Identifier: 452-00-01-02-01-1003-00

Project Initiation Date: 5/1995

Project Planned Completion Date: 09/2008

This Project is: Initial Concept _____ Planning _____ Full Acquisition _____ Steady State _____

Mixed Life Cycle XProject/useful segment is funded: Incrementally _____ Fully XWas this project approved by OMB for previous Year Budget Cycle? Yes X NoDid the Executive/Investment Review Committee approve funding for this project this year? Yes X NoDid the CFO review the cost goal? Yes X NoDid the Procurement Executive review the acquisition strategy? Yes X NoIs this investment included in your agency's annual performance plan or Multiple agency annual performance plan? Yes X No

Does the project support homeland security goals and objectives, i.e.,
 1) improve border and transportation security, 2) combat bio-terrorism,
 3) enhance first responder programs; 4) improve information sharing to
 decrease response times for actions and improve the quality of decision
 making? Yes No X

Is this project information technology (see Section 300.4(e) for a definition)? Yes X No*For information technology projects only:*a. Is this project a financial management system (see section 42.2 for a definition)? Yes No XIf so, does this project address a FFMIA compliance area? Yes No X
If yes, which compliance area?b. Does this project implement electronic transactions or record keeping that is covered by the Government Paperwork Elimination Act (GPEA)? Yes No Xc. Was a privacy impact assessment performed for this project? Yes No Xd. Was this project reviewed as part of the FY 2002 Government Information Security Reform Act review process? Yes No XIf yes, were any weaknesses found? Yes No
Have the weaknesses been incorporated into the agency's corrective action plans?e. Has this project been identified as a national critical operation or asset by a Project Matrix review or other agency determination? Yes No X

e.1 If no, is this an agency mission critical or essential service, system, operation, or asset (such as those documented in the agency's COOP Plan), other than those identified above as national critical infrastructures?

Yes ☒ No

PART I: SUMMARY OF SPENDING FOR PROJECT STAGES

(\$ in thousands)

Project Costs	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total
Migrate Legacy Data ¹	25	83	87	75	70	50	52	0	442
Deploy CIS Software Modules ²	35	0	0	15	0	0	0	0	50
Data Content Enhancement ³	48	106	110	115	119	123	127	129	877
Acquisition									
Budgetary	108	189	197	205	189	173	179	129	1,369
Resources:									
Outlays:	108	164	196	204	191	176	174	135	1,348
Application SW ⁴	310	354	370	387	404	423	440	479	3,167
Maintenance									
IT Operations ⁵	238	214	164	165	187	168	169	175	1,480
Maintenance									
Budgetary	548	568	534	552	591	591	609	654	4,647
Resources:									
Outlays:	548	494	540	549	586	591	530	648	4,486
Total									
Budgetary	656	757	731	757	780	764	788	783	6,016
Resources:									
Outlays:	656	658	736	753	777	767	704	783	5,834

I.A. Project Description

The National Museum of American History, Behring Center (NMAH) is replacing three custom-developed legacy collection management systems with a commercial collections management software product—*Multi MIMSY*. NMAH acquired *Multi MIMSY* in February 1996 and deployed the initial version in February 1997. Through the *Multi MIMSY* Collections Information System (CIS), the Museum will manage more than 1.5 million objects and related documentation. The American History Museum is migrating data from the legacy systems, entering data related to recent loans and acquisitions, enhancing and updating existing records with more accurate and complete descriptive and contextual information, and creating digital images of objects and linking them to text. The Museum plans to have all CIS software modules implemented in FY 2005 and all legacy data migrated in FY 2007. Data content and enhancement will continue through the next decade. The Director of the National Museum of American History approved

¹ NMAH is replacing three legacy automated collections information systems and is converting non-electronic data: Salem conversion completed in FY'02; LCIS converted in FY'02-'03; Filmmaker scrubbing completed FY'05; Manual conversion of non-electronic collection records through FY'07.

² NMAH plans to deploy the Mobile Museum and Exhibit Planning Modules.

³ Data Content and Enrichment - enriching records with research findings and curatorial notes and creating digital images of objects and linking to object information, covers 2 temporary staff positions and imaging contracts.

⁴ Includes application software costs such as licensing fees and in-house staff.

⁵ Includes hardware replacement and maintenance, systems software, and operations staff

the project to acquire a commercial collections management system to replace its legacy systems in February 1996.

I.B. Justification

1. How does this investment support your agency's mission and strategic objectives?

The NMAH CIS supports the Smithsonian's strategic objectives to judiciously build and refine, care for, and manage the national collections for current and future generations and achieve management excellence. Specifically, it supports an Institutional strategy to implement and maintain state-of-the-art collections management systems.

The American History Museum has stewardship responsibility for the collections it holds on behalf of the American public. This responsibility, as well as legal issues inherent in relationships with donors, vendors, and others, demand that collections be managed to the highest standards of security and safety and in a manner that provides the greatest benefit to the public. The Museum has been relying on automated systems and digitizing its collections for more than 20 years to support its mission *"to inspire a broader understanding of our nation and its many peoples by creating learning opportunities, stimulating imaginations and presenting challenging ideas about our country's past."* The primary purpose of the CIS is to provide access to the national collections and collections information held by the Museum. To support this goal, NMAH has a responsibility to acquire, develop, and maintain collections information systems that enhance access to and accountability for the national collections, and to ensure long-term preservation of collections information.

Collections documentation includes information on the identity, condition, historical, scientific, aesthetic, and legal significance of a collection item. Collections documentation encompasses information that is inherent to individual collection items, their histories and associations, and reflects the collections management processes and transactions they undergo. Collections documentation improves public and staff access, provides accountability for the research integrity and physical security of collections, facilitates collections management activities, ensures legal, physical and intellectual control over collections, serves as the basis for research, exhibitions, publications and public programs, and supports the stewardship responsibilities and educational mission of the Smithsonian Institution and the NMAH.

Currently, the NMAH CIS is used by Museum curatorial and collections management staff to organize data on objects; activities such as acquisitions, loans in, loans out, insurance, and valuation; and authorities such as events, locations, people and organizations, places, publications, and subjects. The thesaurus feature allows users to apply controlled vocabularies of their own creation, as well as the Getty Art and Architecture Thesaurus (AAT). Any number of digital images can be linked to any number of text-based CIS records. NMAH is in the process of migrating data from the legacy systems, entering data related to recent loans and acquisitions, enhancing and updating existing records with more accurate and complete descriptive and contextual information, and creating digital images of objects and linking them to text.

Once fully implemented, the NMAH CIS will support collections-related research, exhibitions, publications, Web content, and educational programming, as well as public access to collections information. After all the legacy records are converted there will still be much work to do. Many of the legacy records being converted contain skeletal information and lack images. Collections information is widely distributed throughout the museum's collecting units in non-automated records. Collating and manually entering this information is a mammoth task that will require contract staff to complete. Funds to support the creation and linking of digital images to records in the CIS will be needed on a continuing basis.

2. How does it support the strategic goals from the President's Management Agenda?

The NMAH CIS project supports the President's Management Agenda goals to adopt best commercial practices to reduce operating costs and make it simpler for employees to do their jobs and to use the web to provide educational material to the public.

3. Are there any alternative sources in the public or private sectors that could perform this function?

No. Managing the Institution's collections is a core mission of the Smithsonian.

4. If so, explain why your agency did not select one of these alternatives.

5. Who are the customers for this project?

Customers for the NMAH CIS include museum curators, museum specialists, registrar, visiting scholars, research community, other museums and educational institutions, and the public.

6. Who are the stakeholders of this project?

Key stakeholders for the NMAH CIS project include the Smithsonian Under Secretary for American Museums and National Programs, the Director, National Museum of American History, and the Director of Curatorial Affairs.

7. If this is a multi-agency initiative, identify the agencies and organizations affected by this initiative.
N/A

8. How will this investment reduce costs or improve efficiencies?

Through the NMAH CIS, the American History Museum will improve collection data quality, quantity and access, thereby insuring full physical, legal and intellectual control over the national collections, and providing ready, cost-effective access to information about the national collections to all those who need it. Once fully implemented, there will be a wide variety of audiences for NMAH collections information. The projected uses, constituents (users), and benefits of the NMAH CIS, are detailed in the following table.

Use of CIS Data	Major Constituent(s) (Users)	Benefit
Collections Tracking & Inventory	NMAH Management & Staff	Full physical and legal control of collections; inventories can be completed more reliably and rapidly.
Collections Management	NMAH Management & Staff	Information about registration, preservation, storage and collections documentation activities recorded in a standard consistent manner; easily accessible information facilitates efficient work processes; improved communication about collections internally and externally.

Use of CIS Data	Major Constituent(s) (Users)	Benefit
Collections-Based Scholarly Research	NMAH Curatorial Staff, National/International Scholars, Specialized Public Audiences	CIS will allow individual users to rapidly search collections, compare/contrast multiple objects, and research teams to efficiently share results, thus enriching research and improving accuracy and analysis. NMAH base of knowledge grows for use by future generations and as basis for public outreach.
Education	NMAH Staff, Educators, Students	CIS will allow users to access collections information to develop educational materials for K-12, college and post-graduate students; museum visitors on-site and off; and other learners.
Public Outreach	General Public	CIS will expand access to NMAH collections information to the interested public via the World Wide Web, to assist with learning about our nation's history.
On-Site Exhibition Development	NMAH Management and Staff, Contractors	CIS will provide direct rapid access to shared collections information to efficiently and effectively manage exhibition planning and production; provide ready access to current scholarship to assist in development of intellectual content for exhibitions.

9. List all other assets that interface with this asset.

NMAH CIS relies on the Smithsonian IT Infrastructure to transfer data and to make information available to the public via the web.

Have these assets been reengineered as part of this project? Yes ____ No X.

II.C. Performance Goals and Measures (All Assets)

The effectiveness of the NMAH CIS will be assessed by how well it allows the staff to carry out its mandate to manage the collections and prepare collections data for access by the public as follows:

- All acquisitions and loans transactions are recorded and kept current in the NMAH CIS (average 400 new transactions /yr.)
- Digital images and/or multimedia files are added to CIS (average 6000 new images/yr.)
- Object level records are added and updated in the CIS (average 6,000 objects/yr. new manual data entry plus conversion of legacy data as per conversion schedule)

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I.D. Program management

1. Is there a program manager? Yes. Susan Finkel has been assigned as the NMAH CIS project manager.
2. Is there a contracting officer assigned to the project? If so, what is his/her name? Yes, Laura Berman has been assigned as the contracting officer.
3. Is there an Integrated Project Team? Yes
- 3.A. If so, list the skill set represented.

The project team follows a disciplined system development life cycle process prescribed by Smithsonian Directive 920 and tailored for operating, maintaining, and enhancing a commercial software product. In order to effectively operate, maintain, and enhance its CIS, NMAH has established a project team concept that includes the complementary skills of museum curators, collections managers, IT staff, and other supporting organizations. Teams composed of staff from the NMAH Office of Curatorial Affairs together with technical staff from the Computer Services Center work together to implement system upgrades and enhancements.

4. Is there a sponsor/owner? Yes, the Director, National Museum of American History

I.E. Alternatives Analysis

1. Describe the alternative solutions you considered for accomplishing the agency strategic goals that this project was expected to address. Describe the results of the feasibility/performance/benefits analysis. Provide comparisons of the returns (financial and other) for each alternative.

Based on prior experience with custom software development and the emergence in the international museum community of several firms providing off-the-shelf collections management software, NMAH determined that implementing a commercial collections management software product was preferable to developing a new in-house system or maintaining legacy in-house systems. The following alternatives were considered in this analysis:

Alternative	Description
Alternative 1	<p><i>Implement a commercial collections management software product.</i></p> <p>This was the preferred alternative and included purchasing a commercial software product and a designated server, obtaining contractual services to integrate the new server and to convert legacy data into the new system, and to provide training, with quality assurance and independent testing performed in-house by the project team staff. By implementing a commercial software product NMAH minimized its risk by acquiring a fully developed and functional system and complied with federal IT management guidance that encourages the acquisition of commercial software products over developing application software.</p>

Alternative 2	<p><i>Maintain current systems:</i> NMAH operated and maintained three incompatible custom-developed systems to support collections management. These systems were no longer based on any current operating system, and there was no integration among them. Those systems used outdated programming languages, lacked documentation, were poorly coded, were not scalable, and could not be modified or integrated to support the increased demand for services and data quality. Updating this software would have amounted to a complete, ground-up rewrite. Because of the extreme nature of the old systems' deficiencies, it was clear that no benefits would accrue from this alternative. NMAH determined that implementing a commercial collections management software product was preferable to developing a new in-house system or maintaining legacy in-house systems.</p>
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2. Summarize the results of your lifecycle cost analysis performed for each investment and the underlying assumptions.

NMAH did not perform a lifecycle cost analysis for this project.

3. Which alternative was chosen and why? Define the Return on Investment (ROI).

NMAH selected Alternative 1—*Implement a commercial collections management software product*. In implementing a commercial software product NMAH minimized its risk by acquiring a fully developed and functional system and complied with federal IT management guidance that encourages the acquisition of commercial software products over developing application software.

3. A. Are there any quantitative benefits that will be achieved through this investment (e.g., systems savings, cost avoidance, stakeholder benefits, etc)?

NMAH did not quantify benefits that will be achieved by automating collections management.

3. B. For alternative selected, provide financial summary, including Net Present Value by Year and Payback Period Calculations:

NMAH did not compute net present value by year or calculate the payback period.

4. What was the date of your cost benefit analysis? The National Museum of American History did not prepare a cost-benefit analysis.

I.F. Risk Inventory and Assessment

Because the commercial software that underlies NMAHCIS has been successfully implemented in many museums around the world, the risks associated with new system development are minimized. The following major project-related risks can adversely affect project cost and schedule:

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
N/A	Organizational and Change Management				
N/A	Business				
N/A	Data/Info				
Nov 2001	Technology	SI will not have a robust IT infrastructure in place	Medium	SI has initiated complementary project to modernize its infrastructure incrementally through FY 2005. This project will help ensure that museum staff can access the NMAH CIS.	SI has increased contractor support for help desk and network services, increased bandwidth to Web, and upgraded network backbone switches.
March 2000	Strategic	NMNH will not have a modern collections management system in place.	Low	The NMAHCIS project meets one of the Secretary's strategic goals to modernize the collections management systems.	First phase of NMAHCIS implemented successfully in Feb 1997.
July 2002	Security	The IT infrastructure will not have adequate intrusion detection and firewalls in place.	Medium	SI plans to implement an adequate intrusion detection system and redesigned firewall in FY 2004.	SI has reduced the number of services passing through the existing firewall and strengthened passwords.
N/A	Privacy	NMAHCIS does not contain Privacy Act data.			
Nov 2001	Project Resources	The NMAH CIS project will not be adequately funded.	Low	1. Seek other sources of funds. 2. Defer data capture and content enhancement.	NMAHCIS has been funded to date.

1. What is the date of your risk management plan? The Institution did not prepare a risk management plan for the NMAHCIS project.

I.G. Acquisition strategy

1. Will you use a single contract or several contracts to accomplish this project?

The Smithsonian is using multiple contracts to support the NMAH CIS project.

1.A. If multiple contracts are planned, explain how they are related to each other, and how each supports the project performance goals.

The Smithsonian completed a requirement analysis and market survey of commercial collections management software products in October 1995 and used full and open competition to acquire *Multi MIMSY* and system integration in February 1996. The Institution has been incrementally implementing *Multi MIMSY* since February 1997. The Smithsonian has relied on existing federal contracts and General Services Administration (GSA) schedules to acquire equipment, data conversion services, and other commercial software products to implement, operate, maintain, and enhance the National Museum of American History's CIS.

2. What type(s) of contract(s) will you use? Fixed price.

2.A. For cost reimbursement contracts, define risk not sufficiently covered by the risk mitigation plan to require this type of contract. N/A

3. Will you use financial incentives to motivate contractor performance? No.

4. Will you use competition to select suppliers? The NMAH acquired the *Multi MIMSY* and system integration services competitively and plans to use existing government-wide contracts GSA schedule for other need hardware, software, and services.

5. Will you use commercially available or COTS products, or custom-designed products? The Smithsonian has purchased the *Multi MIMSY* commercial collections management software package.

6. What is the date of your acquisition plan? The NMAH completed a market survey and requirements analysis in October 1995.

7. How will you ensure Section 508 compliance?

The *Multi MIMSY* commercial software product was acquired prior to the effective date of Section 508. While many of its features are in compliance with Section 508, the entire product, as acquired from Willoughby, is not in complete compliance. The Institution will work with the software vendor to help assure future compliance. Current and future development efforts are in compliance with Section 508 within the limitations of the base product. Additionally, the Smithsonian ensures that its electronic and information technology is accessible to people with disabilities through participation in the Computer Accommodation Program with the U.S. Department of Defense.

I.H. Project and Funding Plan

The information required by this section will be provided by your earned value management system.

The Smithsonian is not able to implement an earned value management system until FY 2005 after deployment of the Projects and Time and Labor modules of the Enterprise Resource Planning System.

I.H.1. Description of Performance Based Management System

To help assure that collections management requirements are being met, the CIS Project Manager, under the direction of the Director of Curatorial Affairs, leads a cross-functional team of museum curators, collections managers, and IT staff to prioritize CIS enhancements, software upgrades, and acquisition of additional modules. The CIS project has continuing responsibility for ensuring that functional requirements are satisfied in a timely and cost-effective manner and for monitoring progress and results of developments and takes action when needed. To help manage and control the project, the CIS project manager prepares and monitors detailed project plans that contain specifics on such tasks as data migration and enhancement, integration, training, testing, implementation and other related activities. The Institution uses *Microsoft Project Central* to monitor and manage project performance. The project management control system in use provides for tracking schedule performance against project plan milestones. This helps both senior curatorial managers and the project manager to identify problem areas and take corrective actions when actual results deviate significantly from plans. The CIS Project Manager ensures that the necessary information from the project management control system is kept up to date and is provided to the chain of command in a timely manner. These mechanisms have provided a stable mechanism for assessing the CIS's day-to-day operations, data quality, and new developments.

I.H.2. Original Baseline

Cost and Schedule Goals: Original Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Deploy CIS Software Modules	03/1996	05/2002	2,282	50	Smithsonian
Migrate Legacy Data	03/1996	09/2007	4,230	442	Smithsonian
Data Content Enhancement	03/1996	N/A	N/A	877	Smithsonian
Completion date: 09/2007*			Total cost estimate at completion: \$1,369**		

*The estimated completion date is for completion of legacy data migration. Data content enhancement will continue until all collections data has been captured and enhanced.

**Estimate for completion is for development only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

I.H.3. Proposed baseline/current baseline

OMB has not approved changes to the original baseline.

Cost and Schedule Goals: Proposed <u> X </u> or Current (OMB-Approved) _____ Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Deploy CIS Software Modules	03/96	05/04	3,012	50	Smithsonian
Migrate Legacy Data	03/96	09/07	4,230	442	Smithsonian
Data Content Enhancement	03/96	N/A	N/A	877	Smithsonian
Completion date: 09/2007*			Total cost estimate at completion: 1,369**		

*The estimated completion date is for completion of legacy data migration. Data content enhancement will continue until all collections data has been captured and enhanced.

**Estimate for completion is for development only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

NMAH has experienced a six-month slippage in deploying the Mobile Museum Module and has moved back the final deployment of the Exhibition Planning Module by 24 months. The Mobile Museum Module was delayed because of technical problems experienced by the contractor in moving the module to a new release of Oracle and family illness of the pivotal member of the contractor's staff. The module was successfully installed in April 2002 and is now in use.

The Exhibition Planning Module development has been adjusted because of changes in the priority of workloads and deadlines for NMAH and the contractor. An agreement was reached to extend the final deadline for delivery of the module for 24 months, to May 30, 2004. In consideration for this change, the vendor has agreed to expand its services, at no additional cost, and include manual data entry of 12,500 object records for the testing of the Exhibition Planning Module. The data entry work will be done concurrently with the development of the module. Interim deadlines have been instituted to keep the project on track. This data entry work will support NMAH's exhibition schedule in the interim and will provide records for testing the module. NMAH is working closely with the contractor to insure that interim deadlines are met as the Exhibition Planning Module is developed and that NMAH exhibition projects are not adversely affected by the revised deployment schedule.

I.H.4. Actual performance and variance from OMB approved baseline

Comparison of OMB-Approved Baseline and Actual Outcome Phase/Segment/Module of a Project									
Description of Milestone	OMB-Approved Baseline					Actual Outcome			
	Schedule			Planned Cost (\$ 000)	Source of Funds	Schedule		Percent Complete	Actual Cost
	Start Date	End Date	Duration (in days)			Start Date	End Date		
Deploy CIS SW Modules	03/96	05/02	2,282	50	SI	03/96	TBD	95%	
Migrate Legacy Data	03/06	09/07	4,230	442	SI	03/96	TBD	41%	
Data Content Enhancement*	04/96	N/A	N/A	877	SI	03/96	N/A	N/A	
Completion* date: 09/2007				1,369					
Completion date: OMB-approved baseline: 09/2007*						Estimated completion date: 09/2007*			
Total cost: OMB-approved baseline: 1,369**						Estimate at completion: 1,369**			

*The estimated completion date is for completion of legacy data migration. Data content enhancement will continue until all collections data has been captured and enhanced.

**Estimate for completion is for development only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

PART II: ADDITIONAL BUSINESS CASE CRITERIA FOR INFORMATION TECHNOLOGY

II. A. Enterprise Architecture

II.A.1 Business

- A. Is this project identified in your agency's enterprise architecture? Yes
- B. Explain how this project conforms to your departmental (entire agency) enterprise architecture.

The NMAH CIS supports the major business line of the Institution—collections management. The Smithsonian Institution completed a baseline inventory of automated information systems and IT products in March 2001 as part of a companion IT project to establish an enterprise IT architecture and deploy a managed IT infrastructure. Based on an analysis of the IT baseline, the Smithsonian defined a conceptual target IT architecture in July 2001 and published a Technical Reference Model (TRM) in January 2002. The TRM defines a comprehensive set of information technology standards, services, protocols, and products that define the target technical environment for the acquisition, development, and support of Smithsonian application systems, enterprise architecture, and the supporting IT infrastructure. The Technical Reference Model is based on the most recent version of the National Institute of Standards and Technology's Application Portability Profile. The Institution has selected, where appropriate, information technology components that best support an open system environment for operating its application systems. The underlying hardware and software platforms that NMAH operates on are consistent with the Smithsonian enterprise IT architecture.

C. Identify the Lines of Business and Sub-Functions within the Federal Enterprise Architecture Business Reference Model that will be supported by this initiative.

NMAH CIS supports the Internal Operations and Infrastructure and the Education lines of business and the sub-functions of Supply Chain Management (inventory control of collections).

D. Briefly describe how this initiative supports the identified Lines of Business and Sub-Functions of the Federal Business Architecture.

NMAH CIS supports the functions of collections tracking and Inventory, collections management and conservation, collections-based research, curriculum development for K-12 and above, public outreach through the web, and exhibit planning and development.

E. Was this project approved through the EA Review committee at your agency?

No. The Director, National Museum of American History approved the NMAH CIS project in February 1996. The Smithsonian Executive Budget Committee has approved funding for this project.

F. What are the major process simplification/reengineering/design projects that are required as part of this initiative? Through the NMAH CIS project the American History Museum has standardized and defined business processes for collections management, activities such as acquisitions, loans in, loans out, and insurance.

G. What are the major organization restructuring, training, and change management projects that are required? There are no major organization restructuring or change management projects. Training is part of the NMAH CIS project.

H. What are the Agency lines of business involved in this project?

Collections Management and Public Outreach

I. What are the implications for the agency business architecture?

Through the NMAH CIS project, the American History Museum will support collections-related research, exhibitions, publications, Web content, and educational programming, as well as public access to collections information. The NMAH CIS will support internal and worldwide research, while also helping to inventory and manage the Museum's holdings and automate processes related to custody and legal ownership of collections.

II.A.2 Data

A. What types of data will be used in this project? Collections management and research data.

B. Does the data needed for this project already exist at the Federal, State or Local level? If so, what are your plans to gain access to that data?

The data used in the NMAH CIS is internal Smithsonian data. It does not exist at the Federal, State or Local level.

C. Are there legal reasons why the data can't be transferred? If so, what are they and did you address them in the barriers and risk sections above. N/A

D. If this initiative processes spatial data, identify planned investments for spatial data and demonstrate how the agency ensures compliance with the Federal Geographic Data Committee standards required by OMB Circular A-16. N/A

II.A.3 Application and Technology

A. Discuss this initiative/project in relationship to the application and technology layers of the EA. Include a discussion of hardware, applications, infrastructure, etc.

The NMAH CIS is a business application that supports the primary business line of the Institution – collections management. The hardware platform, database, and system components are contained in the Technical Reference Model.

B. Are all of the hardware, applications, and infrastructure requirements for this project included in the EA Technical Reference Model? Yes. If not, please explain

II.B. Security and Privacy**II.B.1 How is security provided and funded for this project?**

The NMAH CIS maintains critical information on collections and collections management activities and requires a high degree of data integrity. The NMAH protects sensitive data from unauthorized access and/or disclosure, assures integrity of data stored in electronic form, and protects data from unauthorized alteration or modification. The NMAH CIS is controlled with respect to access, authority to modify, and ability to operate it. NMAH staff access the system through desktop workstations. The NMAH CIS requires users to authenticate their identity through the entry of a user ID and password. The system allows access only to authorized users based on user profiles. NMAH will document security requirements in a *Security Plan*. The plan will capture security safeguards now in place and planned for CIS. The Associate Director, Office of Curatorial Affairs, with the guidance and assistance of the NMAH Chief Technology Officer, ensures that adequate controls are in place to assure the security and integrity of the NMAH CIS.

A. What is the total dollar amount allocated to security for this project? Security costs are included in the system development and operations costs and not broken out separately.

II.B.2 Does the project meet the following security requirements of the Government Information Security Reform Act, OMB policy, and NIST guidance?

A. Does the project have an up-to-date security plan that meets the requirements of OMB policy and NIST guidance? What is the date of the plan?

The NMAH CIS security plan will be complete in July 2003.

B. Has the project undergone an approved certification and accreditation process? No

C. Have the management, operational, and technical security controls been tested for effectiveness?
No

D. Have all system users been appropriately trained in the past year, including rules of behavior and consequences for violating the rules? No. The Institution published Smithsonian Directive 931 *Use of Computers and Networks* on August 5, 2002. The Directive prescribes rules of employee behavior and identifies potential consequences. The Institution will implement an on-line computer awareness tutorial in FY 2003 and require employees to take the tutorial annually.

E. How has incident-handling capability been incorporated into the system, including intrusion detection, monitoring and audit log reviews? The Smithsonian's Information System Security Officer manages the response to major computer security incidents. Incidents are reported to the FedCIRC Operation Center. The FY 2004 budget request includes funding to implement an adequate intrusion detection system.

F. Is this system operated by contractors either on-site or at a contractor facility? No. If yes, does any such contract include specific security requirements required by law and policy? How are contractor security procedures monitored, verified, and validated by the agency?

II.B.3 How does the agency ensure the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access?

NMAH CIS does not maintain Privacy Act data.

II.B.4 How does the agency ensure that the handling of personal information is consistent with relevant government-wide and agency policies?

Not applicable. NMAH CIS does not contain personal information.

II.C. Government Paperwork Elimination Act (GPEA)

The NMAH CIS supports the electronic government goals of the Government Paperwork Reduction Act (GPEA). Through CIS, NMAH has replaced cumbersome manual paper processes (collections management worksheets) with electronic processes and is reducing the handling and usage of its massive paper legal files and photographs through digitization; it also will eventually provide selected research information to the public through the Internet. Since CIS primarily supports collections management, research and educational outreach needs and will not place a paperwork burden on the public, the GPEA provisions are not applicable.

PART I: CAPITAL ASSET PLAN AND BUSINESS CASE

Agency: Smithsonian Institution

Bureau: (OIA)

Account Title: Salaries and Expenses

Account Identification Code: 33-0100-0

Program Activity:

Name of Project: Collections Information System and Public Computing

Unique Project Identifier: 452-00-01-02-01-1002-00

Project Initiation Date: 09/1997

Project Planned Completion Date: 09/2007

This Project is: Initial Concept____ Planning X Full Acquisition X Steady State____

Mixed Life Cycle____

Project/useful segment is funded: Incrementally X Fully ____Was this project approved by OMB for previous Year Budget Cycle? Yes X NoDid the Executive/Investment Review Committee approve funding for this project this year? Yes X NoDid the CFO review the cost goal? Yes X NoDid the Procurement Executive review the acquisition strategy? Yes X NoIs this investment included in your agency's annual performance plan or Multiple agency annual performance plan? Yes X NoDoes the project support homeland security goals and objectives, i.e., Yes No X1) improve border and transportation security, 2) combat bio-terrorism,
3) enhance first responder programs; 4) improve information sharing to
decrease response times for actions and improve the quality of decision
making?Is this project information technology (see Section 300.4(e) for a definition)? Yes X No*For information technology projects only:*a. Is this project a financial management system Yes No X

(see section 42.2 for a definition)?

If so, does this project address a FFMIA compliance area? Yes No X

If yes, which compliance area?

b. Does this project implement electronic transactions or record keeping
that is covered by the Government Paperwork Elimination Act (GPEA) Yes No Xc. Was a privacy impact assessment performed for this project? Yes No Xd. Was this project reviewed as part of the FY 2002 Government
Information Security Reform Act review process? Yes No X

If yes, were any weaknesses found? Yes No

Have the weaknesses been incorporated into the agency's corrective
action plans?e. Has this project been identified as a national critical operation
or asset by a Project Matrix review or other agency determination? Yes No X

e.1 If no, is this an agency mission critical or essential service, system, operation, or asset (such as those documented in the agency's COOP Plan), other than those identified above as national critical infrastructures? Yes ☒ No

SUMMARY OF SPENDING FOR PROJECT STAGES

(\$ in thousands)

Project Costs	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total
Re-engineer Move DB	637	692	68	0	0	0	0	0	1,397
CIS	0	274	636	0	0	0	0	0	910
Media Asset	80	126	431	0	0	0	0	0	637
Web Content Management	0	146	309	443	0	0	0	0	898
Public Access	0	8	292	1,046	0	0	0	0	1,346
Exhibit Interactives	0	170	80	1,520	0	0	0	0	1,770
Digitization	541	721	729	737	435	435	435	435	4,468
Acquisition:	1,258	2,137	2,545	3,746	435	435	435	435	11,426
Budgetary Resources:									
Outlays:	1,258	1,859	2,492	3,590	865	435	435	435	11,369
Appl. Maint. & Ops	56	75	143	863	1,448	1,528	1,287	1,187	6,587
IT Operations	90	60	65	65	117	117	117	117	748
Maintenance:	146	135	208	928	1,565	1,645	1,404	1,304	7,335
Budgetary Resources:									
Outlays:	146	117	199	834	1,483	1,634	1,435	1,317	7,165
Total, All Stages:	1,416	2,272	2,753	4,674	2,000	2,080	1,839	1,739	18,773
Budgetary Resources:									
Outlays:	1,416	1,976	2,691	4,424	2,348	2,069	1,870	1,752	18,546

I.A. Project Description

The National Museum of the American Indian (NMAI) seeks to implement commercial Collections Information, Media Asset Management, and Web Content Management systems and integrate these applications to provide staff with information and methods to manage electronic collections, media, and Web content and appropriately provide NMAI's information resources to the American people both in its museums and through the Internet. Integrated management of information resources will allow NMAI to repurpose and reuse information for public programs, education, publications, research, and exhibits. NMAI plans to develop collaborative cataloguing applications that will allow Native American communities to work with museum staff to augment NMAI's information resources. NMAI will actively work with a consortium of museums with Native American collections and Native communities to develop technical standards, shared conceptual reference models, and terminology and vocabulary standards. Much of the equipment will be installed before the opening of the new Museum on the National Mall. The Smithsonian Executive Budget Committee approved the funding for this project on June 19, 2002.

I.B. Justification

1. How does this investment support your agency's mission and strategic objectives?

The NMAI CIS project supports Smithsonian's strategic objectives to judiciously build and refine, care for, and manage the national collections for current and future generations, prepare world-class exhibits, enhance public outreach to minorities, and achieve management excellence. Specifically, it supports an Institutional strategy to implement and maintain state-of-the-art collections management systems.

NMAI's existing collections information systems are basic inventory control mechanisms mainly designed for accountability in NMAI's move. NMAI cannot sustain its mission without modern collections information resource management systems. NMAI needs new collections information, media asset management, and content management systems to manage collections, provide appropriate care, manage research information, and respond to ever-growing public requests for information. Sound planning, effective use of NMAI's information resources, and achievement of strategic programmatic goals depend on the electronic availability of its intellectual resources to staff, SI museums, Native Americans, and the general public.

The National Museum of the American Indian (NMAI) has stewardship responsibility for the collections it holds on behalf of the American public. These collections include objects, paper archival documentation repositories, extensive media collections including still images, film, video, and audio, staff research and interpretation efforts embodied in exhibits, publications, and Web sites, educational materials, and other compiled resources. This responsibility, as well as legal issues inherent in relationships with Native Americans, donors, vendors, and others, demands that NMAI's collections be managed to the highest standards of security and safety and in a manner that provides the greatest benefit to the public. *The Way of the People*, a strategic direction-setting document resulting from a series of consultations with Native Americans in 1991, recommended that

- the National Museum of the American Indian (NMAI) become a clearinghouse in the flow of information among international Native Communities
- NMAI generate and collaborate in producing new information through diverse research programs
- information should be organized to accommodate the needs of multiple users.

In many ways, the advice and expectations stated by Native Americans for access to and sharing of information surpass those of traditional museums and establish an ambitious technology agenda for NMAI activities.

A "collections record" about an object is an ever-growing complex encyclopedic matrix of information about people, cultures, and organizations; places—historic and contemporary, as well as environmental factors; events—fictional, spiritual, historic and administrative; materials, techniques of manufacture, processes; notions of time—Native and modern calendars, epochs and periods; and ideas or concepts—styles, iconography, iconology, and connections to ontologies and cosmologies. Museums strive to gain, share, and manage knowledge, experience, and opinions. Information is an asset. Thus, information is continuously added to NMAI's collections, research, conservation, exhibits, photography, and conservation records.

A basket is requested for loan, a curator reviewing baskets recognizes a basket that was made by a member of the Kumeyaay rather than the Tohono O'odham tribe to which it had been attributed. The Kumeyaay basket is conserved as part of an exhibit preparation process, it appears in an exhibit, the exhibit travels, and has several related publications. A researcher reviewing NMAI's Photographic Archives collections recognizes the basket in a historic photograph and suggests that this be linked to the object record. A scholar requests an image of the basket for citation in an article about basketry techniques and gives an electronic copy of the article to the museum. A Native American elder visits NMAI and tells the story of the snake and the turtle woven into the basket design and explains its significance for his people. The storytelling is captured on digital video and linked to the object record, while stored digitally in the media collection. The intellectual property rights for the story belong to the elder and a note is added saying that the digital video is to be made available only to on-site researchers.

Although there is a point at which the museum recognizes that a record is sufficiently rich and informative to be released to the public, there is no firm point in time when an object record can be said to be "complete" or "done." No single system will hold and manage this rich information resource, instead NMAI seeks to use commercial software products that best meet needed functions and integrate a collections information system (object-centric focus), a media information management system (still images, film, video, and audio data and rights management), and the Institution's Web Content Management (WCM) system to draw together diverse information to create a knowledge base. The systems that manage this information must be fully integrated to avoid data and methods or service redundancies and allow NMAI audiences to access and appreciate the richness of Native American culture.

2. How does it support the strategic goals from the President's Management Agenda?

The NMAI CIS system supports the President's Management Agenda goal to adopt best commercial practices to reduce operating costs and make it simpler for employees to do their jobs and to use the Web to provide educational material to the public.

3. Are there any alternative sources in the public or private sectors that could perform this function?

No. Managing the Institution's collections is a core mission of the Smithsonian.

4. If so, explain why your agency did not select one of these alternatives. N/A

5. Who are the customers for this project?

Customers for the NMAI's Collections Information Systems include museum curators, museum specialists, registrar, visiting scholars, research community, other museums and educational institutions, and the public.

6. Who are the stakeholders of this project?

Key stakeholders for NMAI's CIS project include NMAI management and staff, OCIO, SI management, Native Americans, and the American public.

7. If this is a multi-agency initiative, identify the agencies and organizations affected by this initiative.
N/A

8. How will this investment reduce costs or improve efficiencies?

NMAI will provide integrated access to its key information resources, eliminate redundancy of effort and of data, reduce opportunities for errors, reduce the amount of time and frustration devoted to reconciling data among diverse paper and electronic systems, automate routine and repetitive transactions now performed manually, provide opportunities for performing value-added work, make information available for reuse, and provide external audiences with the information they request. NMAI will be able to link its collections information with those of other museums to create an international resource.

9. List all other assets that interface with this asset.

NMAI CIS relies on the Smithsonian IT Infrastructure to transfer data and to make information available to the public via the web. NMAI also plans to interface with the Smithsonian Institution Research Information System.

Have these assets been reengineered as part of this project? Yes ____ No X.

I.C. Performance Goals and Measures (All Assets)

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY 2001)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
2002–2008	Management Excellence	<p>1. On-going audit of move from Research Center, N.Y. to CRC in Md.</p> <p>2. Museum under construction and move under way.</p>	<p>1. Unqualified audit opinion</p> <p>2. Move supports opening of Mall museum on schedule, 09/21/04.</p>	<p>1. Move project receives unqualified audit opinion on completion.</p> <p>2. Move on schedule for completion from Research Branch (Bronx, NY) to Cultural Resources Center, Suitland, MD.</p>	<p>1. 2002 Move Audit Results.</p> <p>2. Opening of NMAI Museum on the Mall.</p>	
	Public Impact	<p>1. Museum under construction and move of objects under way.</p> <p>2. Plans to open Resource Center in 2004.</p>	<p>1. Automated exhibit planning and management systems in place to support preparations for opening new museum.</p> <p>2. Summary object records with images available in 2004 through Resource Center to all NMAI visitors.</p>	<p>1. Automated exhibit planning & management systems help prepare first class exhibits for museum opening.</p> <p>2. Resource Center on Mall provides visitors access to records, contextual information, and library resources at opening.</p>	<p>1. First class exhibits for museum opening.</p> <p>2. Summary object records with images available to visitors.</p>	

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY 2001)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
2002–2008	Public Impact	3. Limited collections information is currently available to on-line visitors.	3A. Opening exhibits available via Web in 2006. 3.B. Web-based educational programs for Native American schools provide context and information nationwide In 2005. 3.C. Inter-active content in exhibits and exhibit stories available in FY 2006.	3A. Opening exhibits available via Web in 2006. Virtual visitors outnumber physical visitors 4 to 1. 3.B. NMAI Webcasts educational programs to Native American Schools in FY 2005. 3.C. NMAI provides inter-active content in exhibits and exhibit stories to virtual and physical visitors in FY 2006.	3A. Number of collections, media, and Web Content available to virtual visitors. 3.B. Webcasts of educational programs to Native American Schools. 3.C. Inter-active content in exhibits and exhibit stories	

I.D. Program management

1. Is there a program manager? Yes. David Bridge is the Museum Information System project manager.
2. Is there a contracting officer assigned to the project? If so, what is his/her name? Yes, Lynn Spurgeon has been assigned as the contracting officer.
3. Is there an Integrated Project Team? Yes
- 3.A. If so, list the skill set represented.

The project team follows a disciplined system development life cycle process prescribed by Smithsonian Directive 920 and tailored for implementing commercial software products. To deploy and integrate the CIS, Media, and Web Content Management (WCM) systems effectively, NMAI established an Integrated Project Team that recognizes the complementary roles of functional users, collections managers,

curators, and conservators, photo services, public programs, traditional care, and unit and OCIO system developers.

Work Groups have been established for the CIS, Media, and WCM modules and include functional experts (e.g., curators, conservators, media generators, Web project managers) and technology experts. End-user participation and involvement is crucial to the success of this project. End-users have participated since project initiation to obtain clear, validated functional requirements. The project manager, under the direction of the NMAI Information Resources Manager, leads an integrated project team in developing and implementing the CIS, Media, and WCM systems. The team will

- define and refine functional processes and data requirements for each CIS, Media, and WCM module;
- define CIS, Media, and WCM workflow roles, routes, and rules;
- analyze business process fit with the CIS, Media, and WCM software packages, identify implementation options, and develop an integration strategy;
- undertake and participate in acceptance testing;
- review and validate end-user training for each CIS, Media, and WCM module, ensuring that
 - o end-users have initial training to support a newly installed CIS, Media, and WCM module
 - o end-users are adequately trained before systems are fully deployed; and
- serve as change agents, coordinating changes to the work environment brought on by implementation of new business processes.

4. Is there a sponsor/owner? Yes, the Director, National Museum of American Indian.

I.E. Alternatives Analysis

1. Describe the alternative solutions you considered for accomplishing the agency strategic goals that this project was expected to address. Describe the results of the feasibility/performance/benefits analysis. Provide comparisons of the returns (financial and other) for each alternative.

Based on prior experience with custom software development and the emergence in the international museum community of several firms providing off-the-shelf collections management software, NMAI determined that implementing commercial collections management, Media, and Web Content Management software products was preferable to developing a new in-house system. The following alternatives were considered in this analysis:

Alternative	Description
Alternative 1	<i>Implement commercial collections, media, and web content management software products.</i> This is the preferred alternative and includes purchasing commercial software products and hardware, and obtaining system integration services.
Alternative 2	<i>Develop custom collections, media, and web content management systems.</i> This alternative includes acquiring contractual services to design, develop, and deploy a collections management system for NMAI.

2. Summarize the results of your life cycle cost analysis performed for each investment and the underlying assumptions.

NMAI did not perform a life cycle cost analysis for this project.

3. Which alternative was chosen and why? Define the Return on Investment (ROI).

NMAI selected Alternative 1—*Implement commercial collections, media, and web content management software products*. In implementing commercial software products, NMAI minimizes risk by acquiring fully developed and functional systems and complies with federal IT management guidance that encourages the acquisition of commercial software products over developing application software. NMAI staff reviewed market surveys and requirements analyses performed by the Smithsonian art Museums, the National Air & Space Museum, the National Museum of Natural History (NMNH), and the National Museum of American History and attended multiple demonstrations of commercially available CISs already in operation at the Smithsonian. NMAI staff undertook its own market survey in the area of media asset management and led an SI-wide Media Asset Management Technology Working Group to incorporate SI-wide media asset management needs and propose solutions for acceptance in the Smithsonian's Technical Reference Model. Based on the commonality of requirements, NMAI continues to work closely with staff at the National Museum of Natural History to leverage and share resources.

3. A. Are there any quantitative benefits that will be achieved through this investment (e.g., systems savings, cost avoidance, stakeholder benefits, etc)?

NMAI did not quantify benefits that will be achieved by automating collections management.

3. B. For alternative selected, provide financial summary, including Net Present Value by Year and Payback Period Calculations:

NMAI did not compute net present value by year or calculate the payback period.

4. What was the date of your cost benefit analysis? The National Museum of the American Indian did not prepare a cost-benefit analysis.

NMAI staff determined that implementing commercial CIS, Media, and WCM software products is preferable to developing new systems.

I.F. Risk Inventory and Assessment

Because the commercial collections and media management software packages NMAI is considering have been successfully implemented in other museums around the world, the risks associated with new system development—excessive time delays and cost overruns—are minimized. The following major project-related risks may adversely affect project cost and schedule:

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
July 2002	Organizational and Change Management	NMAI cannot adapt its processes to the selected collections management system software product.	Medium	If NMAI cannot adapt its collections and media management processes, commercial software products would have to be	The NMAI Integrated Project Team serves as a Steering Committee for the CIS, Media, and WCM project. It will ensure that all

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
				customized, which will add costs and lead to schedule delays.	units adapt processes to the selected software product without customizing it.
	Business Data/Info				
August 2001	Technology	SI will not have a robust IT infrastructure in place.	Medium	SI has initiated complementary project to modernize its LAN to Desktop infrastructure incrementally through FY 2005. This project is on track, and the four-year migration period will minimize risk of disruption. Specific requirements for infrastructure to support CIS, Media, and WCM will be carefully integrated.	SI has increased contractor support for help desk and network services. It has also increased bandwidth to CRC and New York and upgraded the network backbone switches.

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
July 2002	Strategic Security	The IT infrastructure will not have adequate intrusion detection and firewalls in place.	Medium	SI plans to implement an adequate intrusion detection system and redesigned firewall in FY 2004	SI has reduced the number of services passing through the existing firewall.
October 2001	Privacy Project Resources	The NMAI CIS, Media Asset Management, Web Content Management, public computing, and systems integration project will not be adequately funded.	Medium	NMAI plans to redirect funds from other activities to ensure adequate funding. Seek other sources of funds.	NMAI has funded the project.

1. What is the date of your risk management plan? NMAI did not prepare a risk management plan.

I.G. Acquisition strategy

NMAI will purchase commercially developed Collections Information System and Media Asset Management software to meet its knowledge-base needs. It will use the Web Content Management product, Interwoven, purchased centrally by SI as its WCM product. The CIS, Media, and WCM systems will be implemented incrementally through FY 2006 with the COTS purchases scheduled through FY 2003. NMAI will rely on existing federal contracts and the GSA Schedule to acquire commercial software, systems integration, and independent verification and validation services and production hardware.

1. Will you use a single contract or several contracts to accomplish this project?

NMAI will use multiple contracts to support the CIS, Media, and WCM projects.

- 1.A. If multiple contracts are planned, explain how they are related to each other, and how each supports the project performance goals.

NMAI completed a market survey of commercial CIS software products in January 2002. It is in the process of completing a market survey of commercial Media Asset Management products. Initial efforts were directed at narrowing the field of potential software products to those products that met SI Technical Reference Model requirements.

2. What type(s) of contract(s) will you use?

The CIS and Media Asset Management systems will be acquired through fixed price contracts after negotiation for customization requirements. The systems integration contract will be a time and materials contract. NMAI will rely on existing federal contracts and General Services Administration (GSA) schedules to acquire equipment and other commercial software products to implement, operate, maintain, and enhance its CIS.

2.A. For cost reimbursement contracts, define risk not sufficiently covered by the risk mitigation plan to require this type of contract. N/A

3. Will you use financial incentives to motivate contractor performance? No.

4. Will you use competition to select suppliers? Yes, integration and product assurance services are provided via two government-wide contracts. This uses competition among pre-qualified companies.

5. Will you use commercially available or COTS products, or custom-designed products? NMAI will purchase COTS products for CIS and Media Asset Management needs and has already purchased a web content management commercial product.

6. What is the date of your acquisition plan? NMAI has not prepared a formal acquisition plan.

7. How will you ensure Section 508 compliance?

NMAI's RFI for CIS and its RFP for Media Asset Management will include requirements for Section 508 compliance.

I.H. Project and Funding Plan

The information required by this section will be provided by your earned value management system.

The Smithsonian is not able to implement an earned value management system until FY 2005 after deployment of the Projects and Time and Labor modules of the Enterprise Resource Planning System.

I.H.1. Description of Performance Based Management System

NMAI's Operations Committee will monitor interim results of the CIS, Media, and WCM projects and their integration and take action when needed to ensure that the project stays on track. The Committee will monitor the achievement of or deviation from goals by performing functional and technical reviews to ensure that the project is progressing on schedule and within budget and is satisfying program requirements.

To help manage and control the project, the Museum Information System project manager will prepare detailed project plans, using *Microsoft Central* that contain specifics on such tasks as data migration, fit-gap analysis, concept of operations, detailed requirements, detailed design, integration, training, testing, implementation and other related activities, which serve the transition of the CIS and Media projects from initiation activities through production system operation. The project management control system will provide for tracking schedule performance against project plan milestones. This visibility will help both business and technical managers identify problem areas and take corrective actions when actual results deviate significantly from plans.

I.H.2. Original Baseline

Cost and Schedule Goals: Original Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Re-engineer Move DB	08/2000	04/2002	639	1,193	SI-NMAI
CIS Deployment	09/2001	12/2002	480	610	SI-NMAI
Media Asset Mgmt Deployment	11/2001	02/2003	480	300	SI-NMAI
Digitization	05/1999	N/A	N/A	2,858	SI-NMAI
Enhance Data Content	12/2001	N/A	N/A	1,068	SI-NMAI
System Integration	11/2003	08/2004	300	1,100	SI-NMAI
Completion Date: 08/2004*			Estimate at completion: \$7,129**		

*The estimated completion date is for completion of system integration. Data content enhancement and digitalization will continue until all collections data has been captured and enhanced.

**Estimate for completion is for development only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

I.H.3. Proposed baseline/current baseline

Cost and Schedule Goals: Proposed Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Re-engineer Move DB	08/2000	10/2002	821	1,397	SI-NMAI
CIS Deployment	11/2002	03/2003	486	910	SI-NMAI
Media Asset Mgmt Deployment	02/2002	09/2003	560	637	SI-NMAI
Web Content Management Deployment	09/2002	09/2004	690	898	SI-NMAI
Digitization	05/1999	N/A	N/A	4,468	SI-NMAI
Public Access Deployment	05/2002	09/2004	852	1,346	SI-NMAI
Exhibit Interactives	09/2002	12/2004	840	1,770	SI-NMAI
Completion Date: 12/2004*			Estimate at completion: \$11,426**		

*The estimated completion date is for completion of system integration. Data content enhancement and digitalization will continue until all collections data has been captured and enhanced.

**Estimate for completion is for development only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

Major causes for the increases are: (1) the FY 2003 Exhibit 300 submission did not include in-house staff (FTE) costs and should have; (2) the FY 2003 Exhibit 300 did not focus on the delivery of the content of the collections to the public and should have; and (3) NMAI underestimated the magnitude of the task to integrate systems and provide data warehouse support to perform a variety of museum functions that traditionally have been performed manually. Furthermore, the RFP for a consultant to support NMAI's media asset management analysis was both delayed and unsuccessful. In January 2002 NMAI turned to OCIO with a request to participate in this project. NMAI provided the funds to hire a contractor through OCIO and part-time funding for an OCIO staff person. Needs analysis for both the CIS and Media started

In January 2002 and a combined team was formed to undertake both. The CIS needs analysis was completed in August 2002; the Media needs analysis will be completed in November 2002.

I.H.4. Actual performance and variance from OMB approved baseline

Comparison of OMB-Approved Baseline and Actual Outcome Phase/Segment/Module of a Project									
Description of Milestone	OMB-Approved Baseline					Actual Outcome			
	Schedule			Planned Cost (\$ 000)	Funding Agency	Schedule		Percent Complete	Actual Cost
	Start Date	End Date	Duration (in days)			Start Date	End Date		
Re-engineer Move DB	08/2000	04/2002	639	1,193	SI-NMAI	08/00		95%	
CIS Deployment	09/2001	12/2002	480	610	SI-NMAI	09/01		10%	
Media Asset Mgmt Deployment	11/2001	02/2003	480	300	SI-NMAI	02/02		8%	
Web Content Management	N/A	N/A	N/A	N/A	SI-NMAI	11/01		10%	
Digitization	05/1999	N/A	N/A	2,858	SI-NMAI	05/99			
Enhance Data Content	05/1999	N/A	N/A	1,068	SI-NMAI	N/A			
System Integration	11/2003	8/2004	300	1,100	SI-NMAI	N/A			
Completion date: 08/2004*					Estimated completion date: 12/2004*				
Total cost OMB baseline: \$7,129**					Estimate at completion: \$11,426**				

*The estimated completion date is for completion of system integration. Data content enhancement and digitalization will continue until all collections data has been captured and enhanced.

**Estimate for completion is for development only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

Part II: ADDITIONAL BUSINESS CASE CRITERIA FOR INFORMATION TECHNOLOGY

II. A. Enterprise Architecture

II.A.1 Business

A. Is this project identified in your agency's enterprise architecture? Yes

B. Explain how this project conforms to your departmental (entire agency) enterprise architecture.

The NMAI CIS project supports two major business lines of the Institution—collections management and public access to information. The Smithsonian Institution completed a baseline inventory of automated information systems and IT products in March 2001 as part of a companion IT project to establish an enterprise IT architecture and deploy a managed IT infrastructure. Based on an analysis of the IT baseline, the Smithsonian defined a conceptual target IT architecture in July 2001 and published a Technical Reference Model (TRM) in January 2002. The TRM defines a comprehensive set of information technology standards, services, protocols, and products that define the target technical environment for the acquisition, development, and support of Smithsonian application systems, enterprise architecture, and the supporting IT infrastructure. The Technical Reference Model is based on the most recent version of the Application Portability Profile of the National Institute of Standards and Technology. The Institution

has selected, where appropriate, information technology components that best support an open system environment for operating its application systems. The underlying hardware and software platforms that the CIS, Media, and WCM systems will operate on will be consistent with the Smithsonian enterprise IT architecture.

C. Identify the Lines of Business and Sub-Functions within the Federal Enterprise Architecture Business Reference Model that will be supported by this initiative.

NMAI CIS supports the Internal Operations and Infrastructure and the Education lines of business and the sub-functions of Supply Chain Management (inventory control of collections).

D. Briefly describe how this initiative supports the identified Lines of Business and Sub-Functions of the Federal Business Architecture.

NMAI CIS supports the functions of collections tracking and inventory, collections management and conservation, collections-based research, curriculum development for K-12 and above, public outreach through the web, and exhibit planning and development.

E. Was this project approved through the EA Review committee at your agency?

Yes. The Executive Budget Committee approved funds for this project on June 19, 2002.

F. What are the major process simplification/reengineering/design projects that are required as part of this initiative?

NMAI will standardize and refine business processes for research, conservation, traditional care, collections management, photo services, photo archives, film and video archives, Web projects, exhibit media, and publications, educational programs, and public access to NMAI information resources.

G. What are the major organization restructuring, training, and change management projects that are required?

There will be no major organization restructuring or change management projects. This project will be implemented as NMAI opens on the National Mall and hires about one-third of its staff. The project is timely in that it will be implemented in a relatively new organizational structure with new staff.

H. What are the Agency lines of business involved in this project?

The agency lines of business supported by this project are Exhibits, Research, Education, Collections Management, Public Outreach.

I. What are the implications for the agency business architecture?

An integrated CIS, Media, and Web Content Management system will eliminate redundancy of effort and of data, reduce opportunities for errors, reduce the amount of time and frustration currently devoted to reconciling data among units, automate routine and repetitive transactions now performed manually, provide more opportunities for performing value-added work, and create a central knowledge base for NMAI.

II.A.2 Data

A. What types of data will be used in this project? This project will integrate Move information, Conservation information, Media information including Photo Services and Photo Archives Databases, and Film and Video Information. It will extend to include Traditional Care and Repatriation Information. The system will also hold information generated for NMAI's extensive Web site and exhibit interactives. A data warehouse will be developed to draw together disparate information in a knowledge-base. A separate interface will be developed for the public to search appropriately NMAI's information resources.

Move Information System. NMAI's custom-developed Move Information System provides limited functionality for collections management and specialized tracking functions essential to moving NMAI collections from the Bronx, New York, to Suitland, Maryland. The system incorporates a separate data collection software package to manage and track information gathered for the move from barcodes via hand-held scanners. The system will be kept in place for the term of the move and beyond as needed. Total collection objects to be moved is 773,183. Of these, 168,622 are ethnographic objects and 604,561 are archaeological objects. NMAI stabilized and enhanced the Move Information System in FY 2002 and envisions that it will remain operational through FY 2005.

Conservation Information System. NMAI's conservation staff rely on the conservation information system to support review and preparation of objects for exhibition in the new museum on the National Mall. The conservation database contains basic object information, proposed and actual conservation treatments, and conservation requirements for exhibition of about 5,000 objects. In FY 02, this system was migrated from Access to SQL. It will be migrated to the new CIS and as part of the deployment, NMAI plans to incorporate additional conservation treatments in order to create a complete conservation record and provide a major source of data for planners and designers of all exhibitions destined for the new museum.

Photo Services and Photo Archives Database. The move from New York to Suitland, MD, has provided a unique opportunity to capture digital images of NMAI's collections. NMAI photographers create digital images for documentation, publication, and publicity purposes. As part of the move process, NMAI photographers create a high resolution digital image of each object or a representative sample of objects for archaeological lots. These images are used to enhance access to and preservation of the collections through decreased object handling. The images are stored at the Cultural Resources Center on a storage area network (SAN) in both TIFF and JPEG formats.

As objects are selected for inclusion in publications or exhibits at the George Gustav Heye Center in New York and at the new museum on the National Mall, Photo Services takes high resolution digital images of objects and scans historical photographs from its Photo Archives collection for publicity purposes, as well as to assist the exhibition designers and developers. Additionally, Photo Services digitizes Photo Archives collection images as requests for copies of historic images are received from researchers, external publishers, Native Americans, educators, and students. NMAI has a significant and internationally renowned Photo Archives collection that receives many public requests daily. This collection is now maintained in a series of Access databases according to image format. Databases exist for glass plate negatives, transparencies, lantern slides, black-and-white images, negatives, and color prints. As part of the overall acquisition of new systems for CIS and Media Asset Management, NMAI will reorganize and migrate Photo Archives data to these systems.

Collections Information System. In order to meet extended collections management, curatorial, conservation, repatriation, and traditional care needs, integrate with a media asset management system to manage film, video, audio, and digital images, and link to provide public access to NMAI's extensive knowledge-based resource systems through the Web, NMAI plans to implement a commercial collections management software product. NMAI may be able to leverage the contract between KE Systems and

National Museum of Natural History, acquire additional software licenses for *Emu*, and process the production system on Natural History's server

NMAI plans to migrate its legacy systems and incrementally implement the CIS through FY 2005. Much of the work will be devoted to enhancing data and data normalization. This means determining the preferred formats of all attributes used and the correct values for each instance. New application software will be useless unless data is consistently entered and accurate across systems. A considerable manual effort must be made throughout the museum to agree on and implement consistent classifications, names, and descriptors.

Media Asset Management. NMAI's Film and Video Center uses DOS-based software to manage its film and video collections. The Center has also developed and maintains a database of some 800 Native American media producers and distributors of Native American media. In FY 2002, NMAI will move this collection from the George Gustav Heye Center to the Cultural Resources Center and place it under the control of its Archives unit. As part of the reorganization, NMAI will take the opportunity to review how media is managed and archived within the museum, develop new guidelines and procedures, and acquire a new system to manage its media holdings. The Media Asset Management system will encompass audio, film, and video holdings.

Although immediately cost-intensive, a digital asset management system will be efficient and eventually cost saving for circulation of the museum's digital assets collections across three sites for staff use, public projection, and public study.

B. Does the data needed for this project already exist at the Federal, State or Local level? If so, what are your plans to gain access to that data?

No, but similar resources exist at the Federal, State or Local level. NMAI works with other museums to develop plans to link these resources effectively.

C. Are their legal reasons why the data can't be transferred? If so, what are they and did you address them in the barriers and risk sections above.

The physical resources cannot be transferred. The data can be shared.

D. If this initiative processes spatial data, identify planned investments for spatial data and demonstrate how the agency ensures compliance with the Federal Geographic Data Committee standards required by OMB Circular A-16. N/A

II.A.3 Application and Technology

A. Discuss this initiative/project in relationship to the application and technology layers of the EA. Include a discussion of hardware, applications, infrastructure, etc.

The CIS and potential third-party products used by the CIS are included in the TRM. An SI-wide Technology Working Group has been chartered by OCIO to produce recommendations for Media Asset Management software in the TRM.

B. Are all of the hardware, applications, and infrastructure requirements for this project included in the EA Technical Reference Model? No. The Smithsonian will include media asset management in the next version of the TRM.

II.B. Security and Privacy**II.B.1** How is security provided and funded for this project?

NMAI will protect sensitive collections-related, contract, and personnel data from unauthorized access and/or disclosure. These data, which are considered confidential, also require assurance of their integrity when stored in electronic form, as well as security from unauthorized alteration or modification. The NMAI will explicitly consider security of all sensitive information throughout the CIS, Media, and WCM project system life cycle and will document security requirements in a Security Plan. The plan will capture the structured process of planning and implementing adequate, cost-effective security protection. The NMAI Director with the guidance and assistance of the Chief Information Officer (CIO) will ensure that adequate general controls are in place and that the CIS, Media, and WCM systems and business procedures will process and handle sensitive information and deliver critical services in a manner compliant with all applicable laws and regulations.

NMAI will access the CIS, Media, and WCM systems through desktop workstations. The systems will be controlled with respect to access, authority to modify, and ability to operate them. The systems will require users to authenticate their identity through the entry of a user ID and password. The system will allow access only to authorized users based on user profiles. For audit purposes, a record of any changes to the original data will create a history record that includes the date of change and the user ID of the person making the change.

A. What is the total dollar amount allocated to security for this project? Security costs are included in the system development costs and not broken out separately.

II.B.2 Does the project meet the following security requirements of the Government Information Security Reform Act, OMB policy, and NIST guidance?

A. Does the project have an up-to-date security plan that meets the requirements of OMB policy and NIST guidance? What is the date of the plan?

The CIS, Media, and WCM systems security plans will be complete in May 2003.

B. Has the project undergone an approved certification and accreditation process? No

C. Have the management, operational, and technical security controls been tested for effectiveness? No.

D. Have all system users been appropriately trained in the past year, including rules of behavior and consequences for violating the rules?

No. Users will be trained prior to being given access to the system.

E. How has incident-handling capability been incorporated into the system, including intrusion detection, monitoring and audit log reviews?

The Smithsonian's Information System Security Officer manages the response to major computer security incidents. Incidents are reported to the FedCIRC Operation Center. The FY 2004 budget request includes funding to implement an adequate intrusion detection system.

F. Is this system operated by contractors either on-site or at a contractor facility? If yes, does any such contract include specific security requirements required by law and policy? How are contractor security procedures monitored, verified, and validated by the agency?

NMAI will use contractors to augment in-house staff to operate the CIS, Media Asset Management, and WCM systems on-site. Contractors undergo a NAC background check.

II.B.3 How does the agency ensure the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access?

The NMAI CIS will not maintain Privacy Act data.

II.B.4 How does the agency ensure that the handling of personal information is consistent with relevant government-wide and agency policies?

Not applicable. The NMAI CIS will not contain personal information.

II.C. Government Paperwork Elimination Act (GPEA)

The NMAI CIS, Media, and WCM systems support collections content and media-related data and will not place a paperwork burden on the public. Thus, the GPEA provisions are not applicable.

PART I: CAPITAL ASSET PLAN AND BUSINESS CASE

Agency: Smithsonian Institution

Bureau: (OIA)

Account Title: Salaries and Expenses

Account Identification Code: 33-0100-0

Program Activity:

Name of Project: National Air & Space Museum Collections Information System (NASMCIS)

Unique Project Identifier: 452-00-01-02-01-1005-00

Project Initiation Date: 5/1995

Project Planned Completion Date: 09/2008

This Project is: Initial Concept _____ Planning _____ Full Acquisition _____ Steady State _____

Mixed Life Cycle XProject/useful segment is funded: Incrementally _____ Fully XWas this project approved by OMB for previous Year Budget Cycle? Yes X NoDid the Executive/Investment Review Committee approve funding for this project this year? Yes X NoDid the CFO review the cost goal? Yes X NoDid the Procurement Executive review the acquisition strategy? Yes X NoIs this investment included in your agency's annual performance plan or Multiple agency annual performance plan? Yes X No

Does the project support homeland security goals and objectives, i.e.,
 1) improve border and transportation security, 2) combat bio-terrorism,
 3) enhance first responder programs; 4) improve information sharing to
 decrease response times for actions and improve the quality of decision
 making? Yes No X

Is this project information technology (see Section 300.4(e) for a definition)? Yes X No*For information technology projects only:*a. Is this project a financial management system (see section 42.2 for a definition)? Yes No XIf so, does this project address a FFMIA compliance area? Yes No X
If yes, which compliance area?b. Does this project implement electronic transactions or record keeping that is covered by the Government Paperwork Elimination Act (GPEA)? Yes No Xc. Was a privacy impact assessment performed for this project? Yes No Xd. Was this project reviewed as part of the FY 2002 Government Information Security Reform Act review process? Yes X NoIf yes, were any weaknesses found? Yes X NoHave the weaknesses been incorporated into the agency's corrective action plans? Yes X Noe. Has this project been identified as a national critical operation or asset by a Project Matrix review or other agency determination? Yes No X

e.1 If no, is this an agency mission critical or essential service, system, operation, or asset (such as those documented in the agency's COOP Plan), other than those identified above as national critical infrastructures?

Yes X No

SUMMARY OF SPENDING FOR PROJECT STAGES
(\$ in thousands)

Project Costs	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total
Data Enhancement ¹	21	48	77	15	15	25	25	29	255
Public Access ²	5	5	15	15	15	20	20	20	115
Hazy Center Replication ³	0	10	35	15	0	0	0	0	60
Acquisition									
Budgetary									
Resources:	26	63	127	45	30	45	45	49	430
Outlays:	26	55	118	56	32	43	45	49	424
Appl. Maint. & Ops	42	55	69	52	58	33	54	59	422
IT Operations	400	663	1,430	1047	987	972	987	984	7,470
Maintenance									
Budgetary									
Resources:	442	718	1,499	1,099	1,045	1,005	1,041	1,043	7,892
Outlays:	442	625	1,397	1,151	1,052	1,010	1,037	1,042	7,756
Total									
Budgetary									
Resources:	468	781	1,626	1,144	1,075	1,050	1,086	1,092	8,322
Outlays:	468	679	1,517	1,206	1,084	1,054	1,082	1,091	8,180

I.A. Project Description

The National Air & Space Museum Collections Information System (NASMCIS) has been fully operational since December 1998. Text and image information has been captured in electronic form, organized in databases, made accessible to museum staff to help manage collections, and made available to the public for educational and recreational purposes. NASM researchers, curators, registrars, and managers have access to rich and consistent information about collections from desktop computers. During the planning period, NASM will replicate the CIS at the new Hazy Center of the Air & Space Museum, extend public access to collections information, and continue work to enrich registration-level records with research findings, curatorial notes that previously have been separated, and digital images.

I.B. Justification

1. How does this investment support your agency's mission and strategic objectives?

¹ Smithsonian Trust Fund contributions to Development and Data Enhancement (in thousands): FY 2002 = \$79.2; FY 2003 = \$114; FY 2004 = \$114; FY 2005 = \$114; FY 2006 = \$118; FY 2007 = \$118; FY 2008 = \$120.5.

² Public access interface development is part of multidisciplinary database-to-Web interface development; direct CIS-to-Web interface development costs are reflected in that project. Readying CIS records for public access is performed by NASM curatorial staff, whose personnel costs are not reported as IT expenses.

³ NASM plans to implement a mirror CIS at the new Hazy Center of the National Air & Space Museum. The CIS will serve museum curators at there and provide an online CIS backup CIS for the museum on the National Mall.

NASMCIS supports the Smithsonian's strategic objectives to build judiciously and refine, care for, and manage the national collections for current and future generations and achieve management excellence. Specifically, it supports an Institutional strategy to implement and maintain state-of-the-art collections management systems.

NASM has stewardship responsibility for the collections it holds in trust for the Nation. This responsibility, as well as legal issues inherent in relationships with donors, vendors, and others, demands that collections be managed to the highest standards of security and safety and in a manner that provides the greatest benefit to the public. In 1997 the collections information systems at NASM failed to provide adequate physical, legal, or intellectual control over the museum's artifacts. These legacy systems contained minimal tracking information about the collections, provided limited security, and were difficult to use, all of which resulted in severe data entry backlogs. In addition, the legacy systems were technologically obsolete and could not be modified to accommodate new technology, such as linking to digital images, to address the growing need of the museum to develop a knowledge base of its collections, or to disseminate that information to the public.

NASM has implemented a commercial collections management software product—*The Museum System*. TMS consists of nine modules: objects, constituents, exhibitions, loans, shipping, bibliography, events, sites, and media. Digital imaging and image management allow linking any number of images and other media files to the records in each module. Text and image information has been captured in electronic form, organized in databases, and made accessible to museum curatorial and collections staff to help manage collections.

Since its initial installation, NASM has made tremendous strides in building a database that accurately reflects the national collections, and expects to attain full physical, legal and intellectual control over all its artifacts by April 2003. Standards have been put in place to ensure data quality and the number of records in the database has doubled. Of these, more than 21,000 now have enhanced content. The database also now contains more than 65,000 digital images of NASM artifacts. These figures represent an annual growth rate of over 25% since inception.

Furthermore, the migration to a single, integrated system has eliminated redundancy of effort and of data, and greatly reduced opportunities for error and lost data. The system has reduced the substantial amount of extra time and associated frustration formerly required to track and maintain NASM artifacts. Through the CIS, NASM has been able to: (1) automate many routine and repetitive transactions; (2) provide substantially more capability to build a true knowledge base about its collections; (3) make that knowledge accessible; and (4) leverage its resources by linking collections-based management, research, and public outreach functions.

NASM plans to focus as follows on three areas to enhance the CIS.

Data Enhancement. This is the continuing process of upgrading data in existing and new records to capture contextual knowledge about a given object: its origins; historical, scientific and/or technological importance; associations with historical figures; digital images and other multimedia; and pointers to further resources, such as bibliographic and archival information. The essence of the museum function preserves not only the object, but also the information that makes an object worthy of a place in the national collections. However, while the creation of a digital image is straightforward, requiring only the object and the appropriate imaging technology, capturing related contextual information requires these *plus* writing skills, access to supporting documents and files, and the knowledge and judgment to know what is important. Therefore, while digital images can be produced in moments, associated text information requires hours or days per object. In this ongoing task, the curatorial and collections staffs work to add rich information to the CIS.

Public Access. Museums face a dilemma with respect to their collections: the balance between access and preservation. The National Air & Space Museum takes seriously its responsibility to preserve the Nation's heritage, while also striving to make artifacts accessible to the public for whom they are held. The data—images and text—held in NASM's CIS offers a superb tool for balancing these requirements by allowing a variety of clients to view, study, and otherwise use the national collections. The goal of the Public Access phase of NASM's CIS development is to provide access to the story of its most important artifacts, via text, images, and other media, to the public via the museum's website. Current efforts focus on readying records for wide dissemination and developing an interface between NASM's CIS and its Web servers.

Hazy Center Replication. As the December 2003 opening of the National Air & Space Museum's Hazy Center draws nearer, the museum must support the needs of staff and visitors in that location and on the National Mall. Its CIS database has grown from less than 650 Mb to more than 70 Gb in the past four years and has a projected annual growth rate of 20–25% over the next five years. Most of the increase in volume is expected to be in image and multimedia data. To distribute the workload better, improve network traffic, reduce user conflicts, and provide for online backup, NASM plans to replicate its CIS server at the Hazy Center. The goal of this replication is to provide enhanced data availability, stability, and overall backup and recovery.

2. How does it support the strategic goals from the President's Management Agenda?

NASMCIS supports the President's Management Agenda goals to adopt best commercial practices to reduce operating costs and make it easier for employees to do their jobs and to use the Web to provide educational material to the public.

3. Are there any alternative sources in the public or private sectors that could perform this function?

No. Managing the Institution's collections is a core mission of the Smithsonian.

4. If so, explain why your agency did not select one of these alternatives.

5. Who are the customers for this project?

Customers for NASMCIS include museum curators, museum specialists, registrar, visiting scholars, the research community, other museums and educational institutions, and the public.

6. Who are the stakeholders of this project?

Key stakeholders for NASMCIS include the Smithsonian Under Secretary for American Museums & National Programs, the Director, National Air & Space Museum, and its Director for Operations.

7. If this is a multi-agency initiative, identify the agencies and organizations affected by this initiative.
N/A

8. How will this investment reduce costs or improve efficiencies?

Through the CIS, NASM can improve data quality, quantity, and access, thereby insuring full physical, legal, and intellectual control over the national collections, and provide ready, cost-effective access to information about them to those who need it. NASM has a variety of audiences for its collections information who require different levels of detail and depth in that information. Major uses, constituents of NASM's CIS and data, and the benefits of NASM's goals for this system, are detailed in the table that follows.

Use of CIS Data	Major Constituent(s)	Benefit
Collections Tracking & Inventory (basic object ID and location)	NASM Management & Staff	Full physical and legal control of collections as required by law; inventories can be completed more reliably and rapidly
Collections Management & Conservation (object status, condition & preservation; includes highly-detailed physical descriptions, high-resolution images)	NASM Management & Staff	Conditions of objects are recorded in a uniform way, facilitating better prioritization & scheduling of object treatment; answers to commonly-asked questions from the public are archived in CIS, so that staff can respond to future queries more quickly and with less cost in time and effort
Collections-Based Research (scholarly research into historical events and/or technological/scientific developments; requires highly-detailed contextual information, both high- and low-resolution images)	NASM Curatorial Staff, National/International Researchers, Writers, Interested Public	CIS allows individual scholars to search collections rapidly, compare/contrast multiple objects, and record results in a central location, and research teams to share results efficiently, thus speeding research and improving accuracy and analysis. NASM gains knowledge-base information for future generations and for use as basis for public information. Research results made available to public enhance their enjoyment and understanding of historical artifacts.
Education (curriculum development & enhancement K-12 and above; requires substantial context and low- to moderate-resolution images)	NASM Education Staff, K-12 and above Teachers and Curriculum Developers, Students	CIS access will allow educators and students to rapidly search collections for desired information on historical events, people, or technological/scientific breakthroughs for lesson plans, curriculum and projects, thus enhancing understanding, retention and enjoyment of material learned.
Public Outreach/World-Wide Web	General Public (both local visitors and world-wide)	CIS access will allow the interested public to browse or search collections to learn about objects, events, individuals of importance to our nation's history, to plan visits to NASM, and for many other purposes.
"Brick & Mortar" Exhibits (planning and development of exhibit galleries, kiosks and traveling exhibits; requires very high-resolution images and edited label scripts)	NASM exhibit design staff planning in-house exhibit galleries, kiosks, or traveling exhibits	CIS provides direct, rapid access to collections information that formerly had to be requested from individual curatorial & collections staff (thus reducing turnaround time and costs); CIS also provides a centralized repository for exhibit planning information, instantaneously and simultaneously accessible to all members of an exhibit team no matter where.

9. List all other assets that interface with this asset.

NASMCIS relies on the Smithsonian IT Infrastructure to transfer data and to make information available to the public via the Web. Future plans call for links to SIRIS.

Have these assets been reengineered as part of this project? Yes ____ No X.

I.C. Performance Goals and Measures (All Assets)

The effectiveness of the NASMCIS will be assessed by how well it allows the staff to carry out its mandate to manage the collections and make them accessible to the public as follows:

Fiscal Year	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
2002-2008	Public Impact Management Excellence		<p>1. NASM has full legal and physical control over accessioned objects by April 2003.</p> <p>2. Add 3000 new digital images annually.</p> <p>3. Add 500 artifact records for "public-access readiness" annually</p> <p>4. Reduce location error rate from 5% to less than 2%</p> <p>5. 10x improvement in speed of recording artifact locations including routine moves and inventories.</p>		<p>1. All objects in NASM collection have CIS records including (at least) object name, accession number and location.</p> <p>2. Number of digital images and/or multimedia files added to CIS annually.</p> <p>3. Artifact records enhanced with context to "public-access readiness" (average 500 records [upgraded/yr])</p>	

I.D. Program management

1. Is there a program manager? Yes. Thomas Yarker has been assigned as the NASMCIS project manager.
2. Is there a contracting officer assigned to the project? If so, what is his/her name? Yes, Melissa Howard has been assigned as the contracting officer.

3. Is there an Integrated Project Team? Yes

3.A. If so, list the skill set represented.

The project team follows a disciplined system development life cycle process prescribed by Smithsonian Directive 920 and tailored for operating, maintaining, and enhancing a commercial software product. In order to effectively operate, maintain, and enhance its CIS, NASM has established a project team concept that recognizes the complementary roles of curators, collection managers, and IT staff. The NASM CIS Committee oversees the evolution of CIS and provides programmatic guidance to the CIS project manager.

4. Is there a sponsor/owner? Yes, the Director, National Air & Space Museum

I.E. Alternatives Analysis

1. Describe the alternative solutions you considered for accomplishing the agency strategic goals that this project was expected to address. Describe the results of the feasibility/performance/benefits analysis. Provide comparisons of the returns (financial and other) for each alternative.

Based on prior experience with custom software development and the emergence in the international museum community of several firms providing off-the-shelf collections management software, the NASM CIS Committee determined that implementing a commercial collections management software product was preferable to developing a new in-house system or maintaining legacy in-house systems. The following alternatives were considered in this analysis:

Alternative	Description
Alternative 1	<i>Implement a commercial collections management software product.</i> This was the preferred alternative and included purchasing a commercial software product and a designated server, obtaining contractual services to integrate the new server and to convert legacy data into the new system, and to provide training, with quality assurance and independent testing performed in-house by the project team staff. In implementing a commercial software product, NASM minimized risk by acquiring a fully developed and functional system.
Alternative 2	<i>Maintain current systems:</i> Before moving to its current CIS, NASM operated three incompatible systems to support collections management: one custom mainframe-based system together with two independent desktop database programs to support the needs of particular collections. The legacy systems used outdated programming languages and operating systems, lacked documentation, were poorly coded, were not scalable, and could not be modified or integrated to support the increased demand for services and data quality. The legacy systems had limited functionality and no imaging capability. In several instances, they were impossible to maintain because the programmers who had originally put them in place had left the Institution.

2. Summarize the results of your life cycle cost analysis performed for each investment and the underlying assumptions.

NASM did not perform a life cycle cost analysis for this project.

3. Which alternative was chosen and why? Define the Return on Investment (ROI).

NASM selected Alternative 1—*Implement a commercial collections management software product*. In implementing a commercial software product, NASM minimized its risk by acquiring a fully developed and functional system and complied with federal IT management guidance that encourages the acquisition of commercial software products over developing application software.

3. A. Are there any quantitative benefits that will be achieved through this investment (e.g., systems savings, cost avoidance, stakeholder benefits, etc)?

NASM did not quantify benefits that will be achieved by automating collections management.

3. B. For alternative selected, provide financial summary, including Net Present Value by Year and Payback Period Calculations:

NASM did not compute net present value by year or calculate the payback period.

4. What was the date of your cost benefit analysis? NASM did not prepare a cost-benefit analysis.

I.F. Risk Inventory and Assessment

NASM's CIS is fully operational. Inherent risks are associated primarily with failure to adequately support continued operation and enhancement. Those risks can be codified as follows:

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
N/A	Organizational and Change Management				
N/A	Business				
N/A	Data/Info				
Nov 2001	Technology	SI will not have a robust IT infrastructure in place	Medium	SI has initiated complementary project to modernize its infrastructure incrementally through FY 2005. This project will help ensure that museum staff can access the NASM CIS.	SI has increased contractor support for help desk and network services, increased bandwidth to Web, and upgraded network backbone switches.

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
March 2000	Strategic	NASM will not have a modern collections management system in place.	Low	NASMCIS project meets one of the Secretary's strategic goals to modernize the collections management systems.	NASMCIS has been in operation since Dec 1998.
July 2002	Security	The IT infrastructure will not have adequate intrusion detection and firewalls in place.	Medium	SI plans to implement an adequate intrusion detection system and redesigned firewall in FY 2004.	SI has reduced the number of services passing through the existing firewall and strengthened passwords.
N/A	Privacy	NASMCIS does not contain Privacy Act data.			
Nov 2001	Project Resources	NASMCIS project will not be adequately funded.	Low	1. Seek other sources of funds. 2. Defer data capture and content enhancement.	NASMCIS has been funded to date.

1. What is the date of your risk management plan? NASM did not prepare a risk management plan.

I.G. Acquisition strategy

1. Will you use a single contract or several contracts to accomplish this project?

The Smithsonian is using multiple contracts to support the NASMCIS.

1.A. If multiple contracts are planned, explain how they are related to each other, and how each supports the project performance goals.

NASM completed a requirement analysis and market survey of commercial collections management software products in 1997 and used full and open competition to acquire *TMS* and data migration services and system integration support that same year. NASM implemented its CIS in December 1998. NASM has relied on existing federal contracts and General Services Administration (GSA) schedules to

acquire equipment and other commercial software products to implement, operate, maintain, and enhance its CIS.

2. What type(s) of contract(s) will you use? Fixed price.

2.A. For cost reimbursement contracts, define risk not sufficiently covered by the risk mitigation plan to require this type of contract. Not applicable.

3. Will you use financial incentives to motivate contractor performance? No.

4. Will you use competition to select suppliers? NASM acquired *TMS* and system integration and data migration services competitively and plans to use existing government-wide contracts GSA schedule for other need hardware, software, and services.

5. Will you use commercially available or COTS products, or custom-designed products? NASM purchased the *TMS* commercial collections management software package.

6. What is the date of your acquisition plan? The Institution completed a market survey and requirements analysis in November 1997.

7. How will you ensure Section 508 compliance?

The *TMS* commercial software product was acquired prior to the effective date of Section 508. While many of its features are in compliance with Section 508, the entire product, as acquired from *Gallery Systems*, is not in complete compliance. The software vendor recently released a Web-based Section 508 compliant version, which the Institution will implement in FY 2003. Additionally, the Smithsonian ensures that its electronic and information technology is accessible to people with disabilities through its participation in the Computer Accommodation Program with the U.S. Department of Defense.

I.H. Project and Funding Plan

The information required by this section will be provided by your earned value management system.

The Smithsonian is not able to implement an earned value management system until FY 2005 after deployment of the Projects and Time and Labor modules of the Enterprise Resource Planning System.

I.H.1. Description of Performance Based Management System

To help assure that requirements are being met, the NASM CIS Committee monitors progress and interim results of the CIS enhancement initiatives and takes action when needed. The Committee is responsible for defining and validating functional requirements, for making resources available to support CIS initiatives, and for reviewing the progress of those initiatives to ensure that functional requirements are being satisfied in a timely and cost-effective manner. CIS work groups perform independent acceptance testing of all CIS enhancements. To help manage and control the project, the NASM CIS project manager prepares detailed project plans that contain specifics on such tasks as data migration, integration, training, testing, implementation and other related activities needed to help assure the transition to production system operation. The Institution uses *Microsoft Project Central* to track schedule performance against project plan milestones. This visibility helps both the NASM CIS Committee and the project manager identify problem areas and take corrective actions when actual results deviate significantly from plans. The NASM CIS Project Manager ensures that the necessary information is provided in a timely manner and entered into the project management control system. These mechanisms provide visibility into the CIS project's functional and technical characteristics, as well as establish management control points for assessing project schedule and quality.

I.H.2. Original Baseline

Cost and Schedule Goals: Original Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Data Content Enhancement	12/1998	N/A	N/A	255	Smithsonian
Public Access	03/1999	N/A	N/A	115	Smithsonian
Hazy CIS Replication	07/2002	12/03	537	60	Smithsonian
Completion date: 09/2008*			Total cost estimate at completion: **		

*The estimated completion date represents the end of the planning period. Data content enhancement and public access will continue until all collections data has been captured, enhanced, and linked to a digital image.

**Estimate for completion of data content enhancement and public access only covers FY 2001–FY 2008 only plus Hazy Center replication costs. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

I.H.3. Proposed baseline/current baseline

There has been no change to the original baseline.

I.H.4. Actual performance and variance from OMB approved baseline

Comparison of OMB-Approved Baseline and Actual Outcome Phase/Segment/Module of a Project									
Description of Milestone	OMB-Approved Baseline					Actual Outcome			
	Schedule			Planned Cost (\$ 000)	Source of Funds	Schedule		Percent Complete	Actual Cost
	Start Date	End Date	Duration (in days)			Start Date	End Date		
Data Content	12/98	05/02	N/A	255	SI	12/98	TBD		
Public Access	03/99	N/A	N/A	115	SI	03/99	TBD		
Hazy CIS Replication	07/02	12/03	537	60	SI	07/02	TBD	16%	
Completion date: 09/2008*									
Completion date: OMB-approved baseline: 09/2008*						Estimated completion date: 09/2008*			
Total cost: OMB-approved baseline: **						Estimate at completion: **			

*The estimated completion date represents the end of the planning period. Data content enhancement and public access will continue until all collections data has been captured, enhanced, and linked to a digital image.

**Estimate for completion of data content enhancement and public access only covers FY 2001–FY 2008 only plus Hazy Center replication costs. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

PART II: ADDITIONAL BUSINESS CASE CRITERIA FOR INFORMATION TECHNOLOGY**II. A. Enterprise Architecture****II.A.1 Business**

A. Is this project identified in your agency's enterprise architecture? Yes

B. Explain how this project conforms to your departmental (entire agency) enterprise architecture.

NASMCIS supports the major business line of the Institution—collections management. The Smithsonian Institution completed a baseline inventory of automated information systems and IT products in March 2001 as part of a companion IT project to establish an enterprise IT architecture and deploy a managed IT infrastructure. Based on an analysis of the IT baseline, the Smithsonian defined a conceptual target IT architecture in July 2001 and published a Technical Reference Model (TRM) in January 2002. The TRM defines a comprehensive set of information technology standards, services, protocols, and products that define the target technical environment for the acquisition, development, and support of Smithsonian application systems, enterprise architecture, and the supporting IT infrastructure. The Technical Reference Model is based on the most recent version of the Application Portability Profile of the National Institute of Standards and Technology. The Institution has selected, where appropriate, information technology components that best support an open system environment for operating its application systems. The underlying hardware and software platforms that NASMCIS operates on are consistent with the Smithsonian enterprise IT architecture.

C. Identify the Lines of Business and Sub-Functions within the Federal Enterprise Architecture Business Reference Model that will be supported by this initiative.

NASMCIS supports the Internal Operations and Infrastructure and the Education lines of business and the sub-functions of Supply Chain Management (inventory control of collections).

D. Briefly describe how this initiative supports the identified Lines of Business and Sub-Functions of the Federal Business Architecture.

NASMCIS supports the functions of collections tracking and Inventory, collections management and conservation, collections-based research, curriculum development for K-12 and above, public outreach through the web, and exhibit planning and development.

E. Was this project approved through the EA Review committee at your agency?

No. The Director, National Air and Space Museum approved the project in 1997. The Smithsonian Executive Budget Committee has approved funding for this project.

F. What are the major process simplification/reengineering/design projects that are required as part of this initiative? Through the CIS, NASM has standardized and defined business processes for collections management, registration activities such as acquisitions, loans in, loans out, and insurance, and curatorial data entry.

G. What are the major organization restructuring, training, and change management projects that are required? There are no major organization restructuring or change management projects. Training is part of the NASM CIS project.

H. What are the Agency lines of business involved in this project?

Collections Management and Public Impact

I. What are the implications for the agency business architecture?

Through the CIS, NASM supports collections-related research, exhibitions, publications, Web content, and educational programming, as well as public access to collections information. The CIS supports internal and worldwide research, while also helping to inventory and manage the art museum's holdings and automate processes related to custody and legal ownership of collections.

II.A.2 Data

A. What types of data will be used in this project? Collections management and research data.

B. Does the data needed for this project already exist at the Federal, State or Local level? If so, what are your plans to gain access to that data?

The data used in the NASMCIS is internal Smithsonian data. It does not exist at the Federal, State or Local level.

C. Are there legal reasons why the data can't be transferred? If so, what are they and did you address them in the barriers and risk sections above. N/A

D. If this initiative processes spatial data, identify planned investments for spatial data and demonstrate how the agency ensures compliance with the Federal Geographic Data Committee standards required by OMB Circular A-16. N/A.

II.A.3 Application and Technology

A. Discuss this initiative/project in relationship to the application and technology layers of the EA. Include a discussion of hardware, applications, infrastructure, etc.

NASMCIS is a business application that supports the primary business line of the Institution – collections management. The hardware platform, database, and system components are contained in the Technical Reference Model.

B. Are all of the hardware, applications, and infrastructure requirements for this project included in the EA Technical Reference Model? Yes. If not, please explain

II.B. Security and Privacy

II.B.1 How is security provided and funded for this project?

NASMCIS maintains critical information on collections and collections management activities and requires a high degree of data integrity. NASMCIS protects sensitive data from unauthorized access and/or disclosure, assures integrity of data stored in electronic form, and protects data from unauthorized alteration or modification. The CIS is controlled with respect to access, authority to modify, and ability to operate it. NASM staff access the system through desktop workstations. NASMCIS requires users to authenticate their identity through the entry of a user ID and password. The system allows access only to authorized users based on user profiles. The Institution will document security requirements in a *Security Plan*. The plan will capture security safeguards now in place and planned for the NASMCIS. The NASM CIS Steering Committee, with the guidance and assistance of the Chief Information Officer (CIO), will

ensure that adequate controls are in place to assure the continued security and integrity of NASMCIS data.

A. What is the total dollar amount allocated to security for this project? Security costs are included in the system operations costs and not broken out separately.

II.B.2 Does the project meet the following security requirements of the Government Information Security Reform Act, OMB policy, and NIST guidance?

A. Does the project have an up-to-date security plan that meets the requirements of OMB policy and NIST guidance? What is the date of the plan?

The NASMCIS security plan will be complete in July 2003.

B. Has the project undergone an approved certification and accreditation process? No

C. Have the management, operational, and technical security controls been tested for effectiveness?
Yes

D. Have all system users been appropriately trained in the past year, including rules of behavior and consequences for violating the rules? No. The Institution published Smithsonian Directive 931 *Use of Computers and Networks* on August 5, 2002. The Directive prescribes rules of employee behavior and identifies potential consequences. The Institution will implement an on-line computer awareness tutorial in FY 2003 and require employees to take the tutorial annually.

E. How has incident-handling capability been incorporated into the system, including intrusion detection, monitoring and audit log reviews? The Smithsonian's Information System Security Officer manages the response to major computer security incidents. Incidents are reported to the FedCIRC Operation Center. The FY 2004 budget request includes funding to implement an adequate intrusion detection system.

F. Is this system operated by contractors either on-site or at a contractor facility? No. If yes, does any such contract include specific security requirements required by law and policy? How are contractor security procedures monitored, verified, and validated by the agency?

II.B.3 How does the agency ensure the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access?

NASMCIS does not maintain Privacy Act data.

II.B.4 How does the agency ensure that the handling of personal information is consistent with relevant government-wide and agency policies?

Not applicable. NASMCIS does not contain personal information.

II.C. Government Paperwork Elimination Act (GPEA)

NASMCIS supports the electronic government goals of the Government Paperwork Reduction Act (GPEA). Through NASMCIS, the Institution's art museums have replaced cumbersome manual paper processes and reduced the handling and usage of its massive paper legal files and photographs through digitization. Since the CIS primarily supports collections management, research and educational outreach needs and will not place a paperwork burden on the public, the GPEA provisions are not applicable.

PART I: CAPITAL ASSET PLAN AND BUSINESS CASE

Agency: Smithsonian Institution

Bureau: (OIA)

Account Title: Salaries and Expenses

Account Identification Code: 33-0100-0

Program Activity:

Name of Project: National Postal Museum Collections Information System (NPMCIS)

Unique Project Identifier: 452-00-01-02-01-1008-00

Project Initiation Date: 5/1995

Project Planned Completion Date: 09/2008

This Project is: Initial Concept _____ Planning _____ Full Acquisition _____ Steady State _____

Mixed Life Cycle XProject/useful segment is funded: _____ Incrementally _____ Fully XWas this project approved by OMB for previous Year Budget Cycle? Yes X NoDid the Executive/Investment Review Committee approve funding for this project this year? Yes X NoDid the CFO review the cost goal? Yes X NoDid the Procurement Executive review the acquisition strategy? Yes X NoIs this investment included in your agency's annual performance plan or Multiple agency annual performance plan? Yes X NoDoes the project support homeland security goals and objectives, i.e.,
1) improve border and transportation security, 2) combat bio-terrorism,
3) enhance first responder programs; 4) improve information sharing to
decrease response times for actions and improve the quality of decision
making? Yes No XIs this project information technology (see Section 300.4(e) for a definition)? Yes X No*For information technology projects only:*a. Is this project a financial management system
(see section 42.2 for a definition)? Yes No XIf so, does this project address a FFMIA compliance area?
If yes, which compliance area? Yes No Xb. Does this project implement electronic transactions or record keeping
that is covered by the Government Paperwork Elimination Act (GPEA)? Yes No Xc. Was a privacy impact assessment performed for this project? Yes No Xd. Was this project reviewed as part of the FY 2002 Government
Information Security Reform Act review process? Yes X NoIf yes, were any weaknesses found? Yes X NoHave the weaknesses been incorporated into the agency's corrective
action plans? Yes X Noe. Has this project been identified as a national critical operation
or asset by a Project Matrix review or other agency determination? Yes No X

e.1 If no, is this an agency mission critical or essential service, system operation, or asset (such as those documented in the agency's COOP Plan), other than those identified above as national critical infrastructures? Yes X No

PART I: SUMMARY OF SPENDING FOR PROJECT STAGES

(\$ in thousands)

Project Costs	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total
Migrate Legacy Data ¹	80	80	0	0	0	0	0	0	160
Data Content ²	5	5	115	115	115	115	115	115	700
Digitization ³	0	0	40	40	40	40	40	40	240
Acquisition Budgetary Resources:	85	85	155	155	155	155	155	155	1,100
Outlays:	85	74	146	155	135	155	135	155	1,040
Application SW Maintenance ⁴	75	87	87	87	87	87	87	87	684
IT Operations ⁵	10	12	12	15	15	15	15	15	109
Maintenance Budgetary Resources:	85	99	99	102	102	102	102	102	793
Outlays:	85	86	99	102	102	102	102	102	780
Total Budgetary Resources:	170	184	254	257	257	257	257	257	1,893
Outlays:⁶	170	160	245	257	237	257	237	257	1,820

I.A. Project Description

The National Postal Museum Collections Information System (NPMCIS) has been fully operational since January 2000. Text and image information has been captured in electronic form, organized in databases, made accessible to museum staff to help manage collections, and made available to the public for educational and recreational purposes. Museum researchers, curators, registrars, and managers have access to information about collections from desktop computers. NPM completed the migration of legacy data in December 2001. During the planning period, the National Postal Museum will enrich registration-level records with research findings, curatorial notes that previously have been separated and digital images.

I.B. Justification

1. How does this investment support your agency's mission and strategic objectives?

¹ Includes in-house staff and contractor support to migrate legacy collections information systems.

² Data Content - in-house staff and contractor support to enrich registration-level records with research findings and curatorial notes.

³ Digitization - creating digital images of art objects and linking to object information.

⁴ Includes application software costs such as licensing fees and in-house staff.

⁵ Includes hardware maintenance and contractor services.

⁶ Institution Trust Fund contributions to Digitization amounts to about \$40,000 annually.

NPMCIS supports the Smithsonian's strategic objectives to judiciously build and refine, care for, and manage the national collections for current and future generations and achieve management excellence. Specifically, it supports an Institutional strategy to implement and maintain state-of-the-art collections management systems.

NPM has stewardship responsibility for the collection it holds on behalf of the American public. This responsibility, as well as legal issues inherent in relationships with donors, vendors, and others, demand that collections be managed to the highest standards of security and safety and in a manner that provides the greatest benefit to the public. NPM previously relied on a combination of manual and automated collection information systems to manage its collection but because of the scope of the collection—more than 13.3 million objects—could not achieve the level of accountability and security that such a large and valuable collection required. In particular, the museum could not keep pace with incoming acquisitions and could not significantly reduce the enormous backlog that existed. Moreover, the legacy systems lacked imaging capability, a key requirement for the national philatelic collection. As a result, numerous manual and automated systems were created for specific projects but the museum lacked a central automated collection information system.

NPM began incrementally implementing *The Museum System (TMS)* in January 2000. *TMS* consists of nine modules: objects, constituents, exhibitions, loans, shipping, bibliography, events, sites, and media. Digital imaging and image management allow linking any number of images and other media files to records in each module. The modules enable the museum to perform a wide range of collection functions in a single database. The functions include accessioning, cataloging, inventory, loans, exhibits and conservation. To date, more than 140,000 records have been added to the system. More than 5000 high-resolution digital images have been linked to the appropriate records. Because of the nature of the museum's collection, master records have been created for collections that contain duplicate objects. For example, 6,000 records have been created for the entire revenue stamp collection, which consists of approximately 8 million stamps. Likewise, the 5000 images include entire album pages and multiples that often contain more than one object. *TMS* has enabled the museum to centralize, standardize and automate many collections management functions, including accessioning, cataloging, loans, exhibitions and all other tasks related to the care and management of the collections. The CIS has enabled the museum to 1) eliminate manual and duplicative tasks 2) review and enhance the quality and accuracy of collection information 3) create high resolution images that are directly linked to the appropriate records and 4) share collection information throughout the museum, thereby enhancing the museum's exhibition and educational programs.

The CIS helps NPM staff manage the collection and make collection information and images available to researchers and the general public. Because most legacy data contains only skeletal information (often including only the object name, dimensions and storage location), the museum has embarked on a comprehensive data enhancement project that provides the contextual and historical information that staff and researchers require when reviewing material from the collection. Legacy records will require a considerable amount of review, research and enhancement before they can be made public and images will have to be created for each record. This is a major challenge given the scope and size of the collection. The museum is also committed to providing images for each unique object and representative images for duplicative collections. Images are absolutely essential for accountability and security reasons.

NPMCIS application servers will be consolidated in FY 2004 as part of the Managed IT Infrastructure project. The planned architecture will incorporate proper infrastructure security.

2. How does it support the strategic goals from the President's Management Agenda?

NPMCIS supports the President's Management Agenda goals to adopt best commercial practices to reduce operating costs and make it simpler for employees to do their jobs and to use the web to provide educational material to the public.

3. Are there any alternative sources in the public or private sectors that could perform this function?

No. Managing the Institution's collections is a core mission of the Smithsonian.

4. If so, explain why your agency did not select one of these alternatives.

5. Who are the customers for this project?

Customers for the CIS include museum curators, museum specialists, registrar, visiting scholars, research community, other museums and educational institutions, and the public.

6. Who are the stakeholders of this project?

Key stakeholders for NPMCIS include the Smithsonian Under Secretary for American Museums and National Programs and the Director of the National Postal Museum.

7. If this is a multi-agency initiative, identify the agencies and organizations affected by this initiative.
N/A

8. How will this investment reduce costs or improve efficiencies?

Through the CIS, NPM can improve data quality, quantity and access, thereby insuring full physical, legal and intellectual control over the national collections, and provide ready, cost-effective access to information about the national collections to all those who need it. NPM has a wide variety of audiences for its collections information who require different levels of detail and depth in that information. Major uses, constituents of NPMCIS and data, and the benefits are detailed in the following table.

Use of CIS Data	Major Constituent(s)	Benefit
Collections Tracking & Inventory (basic object ID and location)	NPM Management & Staff	Full physical and legal control of collections as required by law; inventories can be completed more reliably and rapidly
Collections Management & Conservation (object status, condition & preservation)	NPM Management & Staff	Conditions of objects are recorded in a uniform way, facilitating better prioritization & scheduling of object treatment.
Collections-Based Research (scholarly research into historical events and/or technological/scientific developments; requires highly-detailed contextual information, both high- and low-resolution images)	NPM Curatorial Staff, National/International Researchers, Writers, Interested Public	NPMCIS allows individual scholars to rapidly search collections, compare/contrast multiple objects, and record results in a central location, and research teams to efficiently share results, thus speeding research and improving accuracy and analysis. NPM gains knowledge-base information for future generations and for use as basis for public information.
Public Outreach/World-Wide Web	General Public (both local visitors and world-wide)	NPMCIS access will allow the interested public to browse or search collections to learn about objects, events, individuals of importance to our nation's history, to plan visits to NPM, and for many other purposes.

9. List all other assets that interface with this asset.

NPMCIS relies on the Smithsonian IT Infrastructure to transfer data and to make information available to the public via the Web.

Have these assets been reengineered as part of this project? Yes ____ No X.

I.C. Performance Goals and Measures (All Assets)

The effectiveness of NPMCIS will be assessed by how well it allows the staff to carry out its mandate to manage the collections and make them accessible to the public as follows:

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY2002)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
2002–2008	Public Impact Management Excellence	1. 5000 images are in the CIS. 3. NPMCIS contains 140,000 records.	1. Add 5000 new digital images annually. 2. NPM has full legal and physical control over accessioned objects. 3. Enhance 500 legacy records annually.		1. Images are added to NPM CIS object records annually. 2. All objects in NPMCIS have records that include at least object name, accession number, and location. 3. Number of legacy records enhanced annually.	

I.D. Program management

1. Is there a program manager? Yes. David T. Wilson has been assigned as the NPMCIS project manager.
2. Is there a contracting officer assigned to the project? If so, what is his/her name? Yes, Melissa Howard has been assigned as the contracting officer.
3. Is there an Integrated Project Team? Yes
- 3.A. If so, list the skill set represented.

The project team follows a disciplined system development life cycle process prescribed by Smithsonian Directive 920 and tailored for operating, maintaining, and enhancing a commercial software product. In order to effectively operate, maintain, and enhance its CIS, NPM has established a project team concept that recognizes the complementary roles of curators, collection managers, and IT staff.

4. Is there a sponsor/owner? Yes, the Director, National Postal Museum.

I.E. Alternatives Analysis

1. Describe the alternative solutions you considered for accomplishing the agency strategic goals that this project was expected to address. Describe the results of the feasibility/performance/benefits analysis. Provide comparisons of the returns (financial and other) for each alternative.

Based on prior experience with custom software development and the emergence in the international museum community of several firms providing off-the-shelf collections management software, the ArtCIS Committee determined that implementing a commercial collections management software product was preferable to developing a new in-house system or maintaining legacy in-house systems. The following alternatives were considered in this analysis:

Alternative	Description
Alternative 1	<i>Implement a commercial collections management software product.</i> This was the preferred alternative and included purchasing a commercial software product and a designated server, obtaining contractual services to integrate the new server and to convert legacy data into the new system, and to provide training, with quality assurance and independent testing performed in-house by the project team staff. By implementing a commercial software product, the art museums minimized their risk by acquiring a fully developed and functional system.
Alternative 2	<i>Maintain current systems:</i> NPM operated and maintained its own custom-developed system to support collections management. The legacy system used an outdated programming language and operating system, lacked documentation, was poorly coded, was not scalable, and could not be modified or integrated to support the increased demand for services and data quality. The legacy system had limited functionality and no imaging capability. In several instances, they were impossible to maintain because the programmers who had originally put them in place had left the Institution. Furthermore, the Postal Museum lacked staff capable of developing new systems with the required level of sophistication. Finally, time would be lost in developing a new system, even by an experienced contractor.

2. Summarize the results of your life cycle cost analysis performed for each investment and the underlying assumptions.

The Institution did not perform a life cycle cost analysis for this project.

3. Which alternative was chosen and why? Define the Return on Investment (ROI).

The Institution selected Alternative 1—*Implement a commercial collections management software product*. In implementing a commercial software product the Postal Museum minimized its risk by acquiring a fully developed and functional system and complied with federal IT management guidance that encourages the acquisition of commercial software products over developing application software.

3. A. Are there any quantitative benefits that will be achieved through this investment (e.g., systems savings, cost avoidance, stakeholder benefits, etc)?

The Institution did not quantify benefits that will be achieved by automating collections management.

3. B. For alternative selected, provide financial summary, including Net Present Value by Year and Payback Period Calculations:

The Institution did not compute net present value by year or calculate the payback period.

4. What was the date of your cost benefit analysis? The Institution did not prepare a cost-benefit analysis.

I.F. Risk Inventory and Assessment

NPMCIS is fully operational and is supported through voluntary agreement among multiple Smithsonian units. Inherent risks are associated primarily with failure to adequately support the continued operation and enhancement. Those risks can be codified as follows:

N/A	Organizational and Change Management				
N/A	Business				
N/A	Data/Info				
Nov 2001	Technology	SI will not have a robust IT infrastructure in place	Medium	SI has initiated complementary project to modernize its IT infrastructure incrementally through FY 2005. This project will help ensure that museum staff can access the CIS.	SI has increased contractor support for help desk and network services. SI has also increased bandwidth to web & upgraded the network backbone switches.
March 2000	Strategic	The Postal Museum will not have a modern collections management system in place.	Low	NPMCIS project meets one of the Secretary's strategic goals to modernize the collections management systems.	NPMCIS has been in operation since January 2000.

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
July 2002	Security	The IT infrastructure will not have adequate intrusion detection and firewalls in place.	Medium	SI plans to implement an adequate intrusion detection system and redesigned firewall in FY 2004.	SI has reduced the number of services passing through the existing firewall and strengthened passwords.
N/A	Privacy	NPMCIS does not contain Privacy Act data.			
Nov 2001	Project Resources	NPMCIS project will not be adequately funded.	Low	1. Seek other sources of funds. 2. Defer data content enhancement.	NPMCIS has been funded to date.

1. What is the date of your risk management plan? The Postal Museum did not prepare a risk management plan.

I.G. Acquisition strategy

1. Will you use a single contract or several contracts to accomplish this project?

The Smithsonian is using multiple contracts to support the NPMCIS project.

1.A. If multiple contracts are planned, explain how they are related to each other, and how each supports the project performance goals.

The National Postal Museum relied on the work performed by the ArtCIS Management Committee. The Committee completed a requirements analysis and market survey of commercial collections management software products in 1996. The Institution used full and open competition to acquire *The Museum System (TMS)* and system integration and data migration services in September 1997. The Postal Museum relies on existing Federal contracts and GSA schedules to acquire equipment and other commercial software products to implement, operate, maintain, and enhance the CIS.

2. What type(s) of contract(s) will you use? Fixed price.

2.A. For cost reimbursement contracts, define risk not sufficiently covered by the risk mitigation plan to require this type of contract. Not applicable.

3. Will you use financial incentives to motivate contractor performance? No.

4. Will you use competition to select suppliers? The Institution acquired *TMS* and system integration and data migration services competitively and plans to use existing government-wide contracts GSA schedule for other need hardware, software, and services.
5. Will you use commercially available or COTS products, or custom-designed products? The Smithsonian has purchased the *TMS* commercial collections management software package.
6. What is the date of your acquisition plan? The Institution completed a market survey and requirements analysis in July 1996.
7. How will you ensure Section 508 compliance?

The *TMS* commercial software product was acquired prior to the effective date of Section 508. Many of the features are in compliance with Section 508, but the entire product, as acquired from *Gallery Systems*, is not in complete compliance. The software vendor recently released a Web-based Section 508 compliant version, which the Institution will implement in FY 2003. Additionally, the Smithsonian ensures that its electronic and information technology is accessible to people with disabilities through participation in the Computer Accommodation Program with the U.S. Department of Defense.

I.H. Project and Funding Plan

The information required by this section will be provided by your earned value management system.

The Smithsonian is not able to implement an earned value management system until FY 2005 after deployment of the Projects and Time and Labor modules of the Enterprise Resource Planning System.

I.H.1. Description of Performance Based Management System

To help manage and control the project, the NPMCIS project manager prepares detailed project plans that contain specifics on such tasks as data migration, integration, training, testing, implementation and other related activities needed to help assure the transition to production system operation. The Institution uses *Microsoft Project Central* to track schedule performance against project plan milestones. This visibility helps the project manager identify problem areas and take corrective actions when actual results deviate significantly from plans. The NPMCIS Project Manager ensures that the necessary information is provided in a timely manner and entered into the project management control system. These mechanisms provide visibility into the NPMCIS project's functional and technical characteristics, as well as establish management control points for assessing project schedule and quality.

I.H.2. Original Baseline

Cost and Schedule Goals: Original Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Migrate legacy Data	01/2000	12/01	710	160	Smithsonian
Data Content Enhancement	01/2000	N/A	N/A	585	Smithsonian
Digitization	01/2000	N/A	N/A	200	Smithsonian
Completion date: 09/2008*			Total cost estimate at completion: \$945**		

*The estimated completion date represents the end of the planning period. Data content enhancement and digitization will continue until all collections data has been captured, enhanced, and linked to a digital image.

**Estimate for completion is for data content enhancement and digitization only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

I.H.3. Proposed baseline/current baseline

There has been no change to the original baseline.

I.H.4. Actual performance and variance from OMB approved baseline

Comparison of OMB-Approved Baseline and Actual Outcome Phase/Segment/Module of a Project									
Description of Milestone	OMB-Approved Baseline					Actual Outcome			
	Schedule			Planned Cost (\$ 000)	Source of Funds	Schedule		Percent Complete	Actual Cost
	Start Date	End Date	Duration (in days)			Start Date	End Date		
Migrate legacy Data	01/00	12/01	710	160	SI	01/00	12/01	100%	160
Data Content	01/00	05/02	N/A	585	SI	01/00	TBD		
Digitization	01/00	09/07	N/A	200	SI	01/00	TBD		
Completion* date: 09/2008				945					
Completion date: OMB-approved baseline: 09/2008						Estimated completion date: 09/2008*			
Total cost: OMB-approved baseline: 945						Estimate at completion: 945**			

*The estimated completion date represents the end of the planning period. Data content enhancement and digitization will continue until all collections data has been captured, enhanced, and linked to a digital image.

**Estimate for completion is for data content enhancement and digitization only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

PART II: ADDITIONAL BUSINESS CASE CRITERIA FOR INFORMATION TECHNOLOGY**II. A. Enterprise Architecture****II.A.1 Business**

- A. Is this project identified in your agency's enterprise architecture? Yes
- B. Explain how this project conforms to your departmental (entire agency) enterprise architecture.

NPMCIS supports the major business line of the Institution – collections management. The Smithsonian Institution completed a baseline inventory of automated information systems and IT products in March 2001 as part of a companion IT project to establish an enterprise IT architecture and deploy a managed IT infrastructure. Based on an analysis of the IT baseline, the Smithsonian defined a conceptual target IT architecture in July 2001 and published a Technical Reference Model (TRM) in January 2002. The TRM defines a comprehensive set of information technology standards, services, protocols, and products that define the target technical environment for the acquisition, development, and support of Smithsonian application systems, enterprise architecture, and the supporting IT infrastructure. The Technical Reference Model is based on the most recent version of the National Institute of Standards and Technology's Application Portability Profile. The Institution has selected, where appropriate, information technology components that best support an open system environment for operating its application systems. The underlying hardware and software platforms that NPMCIS operates on are consistent with the Smithsonian enterprise IT architecture.

C. Identify the Lines of Business and Sub-Functions within the Federal Enterprise Architecture Business Reference Model that will be supported by this initiative.

NPMCIS supports the Internal Operations and Infrastructure and the Education lines of business and the sub-functions of Supply Chain Management (inventory control of collections).

D. Briefly describe how this initiative supports the identified Lines of Business and Sub-Functions of the Federal Business Architecture.

NPMCIS supports the functions of collections tracking and Inventory, collections management and conservation, collections-based research, curriculum development for K-12 and above, public outreach through the web, and exhibit planning and development.

E. Was this project approved through the EA Review committee at your agency?

No. The Director, National Postal Museum approved the project in 1994. The Smithsonian Executive Budget Committee has approved funding for this project.

F. What are the major process simplification/reengineering/design projects that are required as part of this initiative? Through the CIS, the Postal Museum has standardized and defined business processes for collections management, registration activities such as acquisitions, loans in, loans out, and insurance, and curatorial data entry.

G. What are the major organization restructuring, training, and change management projects that are required? There are no major organization restructuring or change management projects. Training is part of the project.

H. What are the Agency lines of business involved in this project?

Collections Management and Public Impact

I. What are the implications for the agency business architecture?

Through the NPMCIS, the Postal Museum supports collections-related research, exhibitions, publications, Web content, and educational programming, as well as public access to collections information. NPMCIS supports internal and worldwide research, while also helping to inventory and manage the art museum's holdings and automate processes related to custody and legal ownership of collections.

II.A.2 Data

- A. What types of data will be used in this project? Collections management and research data.
- B. Does the data needed for this project already exist at the Federal, State or Local level? If so, what are your plans to gain access to that data?

The data used in NPMCIS is internal Smithsonian data. It does not exist at the Federal, State or Local level.

- C. Are their legal reasons why the data can't be transferred? If so, what are they and did you address them in the barriers and risk sections above. N/A
- D. If this initiative processes spatial data, identify planned investments for spatial data and demonstrate how the agency ensures compliance with the Federal Geographic Data Committee standards required by OMB Circular A-16. N/A

II.A.3 Application and Technology

- A. Discuss this initiative/project in relationship to the application and technology layers of the EA. Include a discussion of hardware, applications, infrastructure, etc.

NPMCIS is a business application that supports the primary business line of the Institution – collections management. The hardware platform, database, and system components are contained in the Technical Reference Model.

- B. Are all of the hardware, applications, and infrastructure requirements for this project included in the EA Technical Reference Model? Yes. If not, please explain

II.B. Security and Privacy**II.B.1 How is security provided and funded for this project?**

NPMCIS maintains critical information on collections and collections management activities and requires a high degree of data integrity. NPMCIS protects sensitive data from unauthorized access and/or disclosure, assures integrity of data stored in electronic form, and protects data from unauthorized alteration or modification. NPMCIS is controlled with respect to access, authority to modify, and ability to operate it. Museum staff access the system through desktop workstations. NPMCIS requires users to authenticate their identity through the entry of a user ID and password. The system allows access only to authorized users based on user profiles. The Institution will document security requirements in a *Security Plan*. The plan will **Error! Bookmark not defined.** capture security safeguards now in place and planned for NPMCIS. The NPMCIS Steering Committee, with the guidance and assistance of the Chief Information Officer (CIO), will ensure that adequate controls are in place to assure the continued security and integrity of NPMCIS data.

- A. What is the total dollar amount allocated to security for this project? Security costs are included in the system operations costs and not broken out separately.

II.B.2 Does the project meet the following security requirements of the Government Information Security Reform Act, OMB policy, and NIST guidance?

- A. Does the project have an up-to-date security plan that meets the requirements of OMB policy and NIST guidance? What is the date of the plan?

The NPMCIS security plan will be complete in July 2003.

- B. Has the project undergone an approved certification and accreditation process? No
- C. Have the management, operational, and technical security controls been tested for effectiveness? Yes.
- D. Have all system users been appropriately trained in the past year, including rules of behavior and consequences for violating the rules? No. The Institution published Smithsonian Directive 931 *Use of Computers and Networks* on August 5, 2002. The Directive prescribes rules of employee behavior and identifies potential consequences. The Institution will implement an on-line computer awareness tutorial in FY 2003 and require employees to take the tutorial annually.
- E. How has incident-handling capability been incorporated into the system, including intrusion detection, monitoring and audit log reviews? The Smithsonian's Information System Security Officer manages the response to major computer security incidents. Incidents are reported to the FedCIRC Operation Center. The FY 2004 budget request includes funding to implement an adequate intrusion detection system.
- F. I Is this system operated by contractors either on-site or at a contractor facility? No. If yes, does any such contract include specific security requirements required by law and policy? How are contractor security procedures monitored, verified, and validated by the agency?

II.B.3 How does the agency ensure the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access?

NPMCIS does not maintain Privacy Act data.

II.B.4 How does the agency ensure that the handling of personal information is consistent with relevant government-wide and agency policies?

Not applicable. NPMCIS does not contain personal information.

II.C. Government Paperwork Elimination Act (GPEA)

NPMCIS supports the electronic government goals of the Government Paperwork Reduction Act (GPEA). Through NPMCIS, the Institution's art museums have replaced cumbersome manual paper processes and reduced the handling and usage of its massive paper legal files and photographs through digitization. Since CIS primarily supports collections management, research and educational outreach needs and will not place a paperwork burden on the public, the GPEA provisions are not applicable.

PART I: CAPITAL ASSET PLAN AND BUSINESS CASE

Agency: Smithsonian Institution

Bureau: (OIA)

Account Title: Salaries and Expenses

Account Identification Code: 33-0100-0

Program Activity:

Name of Project: NMNH Research & Collections Information System

Unique Project Identifier: 452-00-01-02-01-1007-00

Project Initiation Date: 4/1993

Project Planned Completion Date: 12/2008

This Project is: Initial Concept_____ Planning_____ Full Acquisition _____ Steady State_____

Mixed Life Cycle X

Project/useful segment is funded: Incrementally ☐ Fully ☒ X

Was this project approved by OMB for previous Year Budget Cycle? Yes ☒ No ☐

Did the Executive/Investment Review Committee approve funding	Yes	<input checked="" type="checkbox"/>	No
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for this project this year?

Did the CFO review the cost goal?	Yes	X	No
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Did the Procurement Executive review the acquisition strategy?	Yes	\bar{X}	No

Is this investment included in your agency's annual performance plan or	Yes	<input checked="" type="checkbox"/>	No
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Multiple agency annual performance plan?

Does the project support homeland security goals and objectives, i.e., Yes No X

1) improve border and transportation security, 2) combat bio-terrorism, 3) enhance first responder programs; 4) improve information sharing to decrease response times for actions and improve the quality of decision making?

Is this project information technology (see Section 300.4(e) for a definition)? Yes ☒ No ☐

For information technology projects only:

a. Is this project a financial management system	Yes	No	X
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(see section 42.2 for a definition)?

If so, does this project address a FFMIA compliance area? Yes No ☒ X

If yes, which compliance area?

Federal financial system requirements

b. Does this project implement electronic transactions or record keeping that is covered by the Government Paperwork Elimination Act (GPEA)	Yes	No	X
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c. Was a privacy impact assessment performed for this project? Yes No ☒ X

d. Was this project reviewed as part of the FY 2002 Government	Yes	No	<u>X</u>
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Information Security Reform Act review process?

If yes, were any weaknesses found?	Yes	No
1. Was the information provided in the report accurate and reliable?		
2. Was the information provided in the report clear and concise?		
3. Was the information provided in the report relevant and useful?		
4. Was the information provided in the report timely and up-to-date?		
5. Was the information provided in the report presented in a logical and organized manner?		
6. Was the information provided in the report presented in a visually appealing manner?		
7. Was the information provided in the report presented in a way that was easy to understand?		
8. Was the information provided in the report presented in a way that was easy to use?		
9. Was the information provided in the report presented in a way that was easy to share?		
10. Was the information provided in the report presented in a way that was easy to access?		

Have the weaknesses been incorporated into the agency's corrective action plans?

e. Has this project been identified as a national critical operation or asset by a Project Matrix review or other agency determination? Yes No X

e.1 If no, is this an agency mission critical or essential service, system, operation, or asset (such as those documented in the agency's COOP Plan), other than those identified above as national critical infrastructures? Yes X No

PART I: SUMMARY OF SPENDING FOR PROJECT STAGES

(\$ in thousands)

Project Costs	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total
Deploy Catalogue subsystem ¹	758	741	553	0	0	0	0	0	2,052
Migrate Legacy Data ²	72	72	0	0	0	0	0	0	144
Data Capture ³	840	845	1,072	1,294	1,685	1,770	1,858	1,887	11,251
Data Content Enhancement ⁴	1,600	1,673	1,484	1,941	1,685	1,770	1,858	1,887	13,898
Public Access	40	23	21	20	180	100	100	100	584
Migrate Transaction Management System	0	0	50	200	0	0	0	0	250
Acquisition									
Budgetary Resources:	3,310	3,354	3,180	3,455	3,550	3,640	3,816	3,874	28,179
Outlays:	3,310	2,918	3,203	3,419	3,538	3,629	3,793	3,866	27,676
Application SW Maintenance ⁵	175	140	232	367	1,128	1,048	1,112	1,244	5,446
IT Operations ⁶	41	112	56	160	1,460	380	730	1,586	4,525
Maintenance									
Budgetary Resources:	216	252	288	527	2,588	1,428	1,842	2,830	9,971
Outlays:	216	219	284	495	2,321	1,578	1,789	2,701	9,603
Total									
Budgetary Resources:	3,526	3,606	3,468	3,982	6,138	5,068	5,658	6,704	38,150
Outlays:	3,526	3,137	3,486	3,915	5,858	5,207	5,581	6,568	37,279

I.A. Project Description

The National Museum of Natural History (NMNH) is implementing a commercial collection information system to help manage its 124 million objects and specimens. Through the Research & Collections Information Systems (RCIS) project, the Museum will integrate and fully automate more than five million

¹ Invertebrate Zoology was deployed in August 2001, Mineral Sciences in June 2002; other collections will be deployed in accordance with the schedule in part IIIB. Includes contract and staff costs (both Research and Collections Informatics office staff and Research and Collections departmental staff). The Transaction Management functions of that sub-system will be combined with the Multimedia Catalogue sub-system to form a single RCIS in FY 04 and FY 05.

² Legacy data migration from existing sources is entirely included in contract costs.

³ Data capture of catalogue records is accomplished almost entirely with existing Research and Collections department staff. Smithsonian Trust Funds (mainly from grants and contracts from other government agencies) averaging approximately \$300,000 are currently used for data capture.

⁴ Enhancement of Data Content is the amendment of catalogue records with corrections, research findings, notes, and creation of digital images, sound and/or videos of objects, specimens, and observations and linking them to text catalogue records. Currently accomplished solely with existing NMNH staff (almost entirely from the Research and Collections departments).

⁵ Includes application software costs such as licensing fees, software maintenance and upgrades, and in-house staff (Research and Collections Informatics office staff).

⁶ Includes hardware replacement and maintenance, operating systems software and maintenance, and in-house operations staff (Research and Collections Informatics office staff).

records now held in multiple legacy systems, as well as additional objects and specimens that have been and will be accessioned by the Museum. RCIS includes two major sub-systems: the Multimedia Catalogue System (MCS) and the Transaction Management System (TM). The MCS will support internal and worldwide research, while also helping to inventory and manage the Museum's holdings. The TM sub-system automates processes related to custody and legal ownership of collections. It has been developed in-house to manage and track collections as they are acquired, loaned, borrowed from other institutions for research or exhibitions, or permanently removed from Museum custody by deaccessioning. The Museum plans to combine the functions into a single system by the end of FY 2005. The Capital Planning Board approved the RCIS project on May 14, 2002.

I.B. Justification

1. How does this investment support your agency's mission and strategic objectives?

RCIS supports the Smithsonian's strategic objectives to judiciously build and refine, care for, and manage the national collections for current and future generations and achieve management excellence. Specifically, it supports an Institutional strategy to implement and maintain state-of-the-art collections management systems.

The National Museum of Natural History (NMNH) has stewardship responsibility for the world's largest museum collection—more than 124 million objects and specimens—in the world. It is also one of the most important, covering seven significant fields of learning—vertebrate zoology, invertebrate zoology, entomology, paleobiology, botany, anthropology, and mineral sciences—and having been expanded by knowledge from nearly two centuries of study by the international scientific community. Responsibility for a collection of this magnitude demands that it be managed to the highest standards possible and in a manner that provides enduring public benefit.

Since the late 1960s the Museum has been capturing text information—and, more recently, images—in electronic form, organizing it in databases, and making it accessible to museum staff for collections management, to scientists for research, and to the public for educational, policy, and decision-making purposes. The information, which is integral to and inherent in the objects and specimens, adds context, as well as scientific and historic value to them. It is available to and used by universities around the world, students of all ages, US agencies such as the Departments of Agriculture, Defense, and Commerce, and the National Aeronautics & Space Administration, the media, non-governmental organizations, and foreign governments.

RCIS helps museum staff manage collections through desktop processing of transactions relating to acquisitions, loans, borrows, exchanges, and disposals. Each year the Museum acquires about 500,000 specimens, disposes of about 68,000, loans about 170,000, and borrows about 327,000. Last year, these loans went to 51 US states and territories and 51 foreign countries. Many of the specimens included in these transactions require that NMNH file permits with the US Fish and Wildlife Service and other agencies. Permits and other forms, reports, and letters are electronically generated through RCIS, resulting in much greater efficiency of staff time.

In FY 2000, the Natural History Museum selected a commercial software product for the Museum Cataloging sub-system – KE Software's, *Electronic Museum (EMu)*, and began migrating its legacy collection management systems. *EMu* is a mature commercial software product that has been used worldwide in natural history museums since 1984. Data standards include the Association of Systematics Collections data model and the Federal Geographic Data Standards.

The legacy systems contain minimal tracking information on NMNH collections, provide limited security, and are difficult to use. In addition, the legacy systems are technologically obsolete and cannot be modified to accommodate new technology, such as linking to digital images, or meet the growing needs of the Museum to develop a knowledge base of its collections and disseminate that information to the public. Furthermore, the legacy systems do not support integrative research or today's global policy-related questions.

Data migration and implementation will be completed in 2003 and bring together data now residing in multiple locations and formats. However, there will still be much work to do, including making the data available to the public on the Web over the next several years. Many of the 5.5 million legacy records contain only basic information and nearly all lack images. The 5.5 million records represent more than 10 % of the museum's collections but will nevertheless form the largest museum database in the world. About 80 million records are needed to adequately represent all of the Museum's collections, some of which are catalogued as "lots," with a "lot" representing a group of objects that have the same name and were collected at the same place at the same time. Collections information is widely distributed throughout the museum's collecting units in non-automated records. Collating and manually entering this information, enhancing the data content, and creating and linking digital images, sounds, and video to RCIS records will be needed on a continuing basis.

RCIS will provide a central repository for many types of data, most importantly:

- specimen/sample level data (*e.g.*, catalogue and storage data, physical characteristics)
- collection event/locality data (date, site, geographical location, GIS referencing where available, ecological data from collection notes with look-up to geographical data)
- biological taxonomy data (the names themselves and their hierarchical relationships, synonymy)
- a thesaurus of culture, artifact, rock, mineral, and gem names (also with associated hierarchical relationships, synonymy)
- bibliographic and citation data
- research data (limited but with attributions for the persons who did the work)
- people and organizations data related to any of the above (*e.g.*, researchers, catalogers, authors, collectors, identifiers).

Over time RCIS will integrate and fully automate more than five million records now held in multiple legacy systems, as well as additional objects and specimens that have been and will be accessioned by the Museum. Implementation, operation, and enhancement of RCIS will require spending of about \$34.6 million during the FY 2002–FY 2008 period, a relatively modest amount when compared to the approximately \$258 million it will cost to physically maintain and manage Natural History's collections during the same period. The value of the collections is priceless.

2. How does it support the strategic goals from the President's Management Agenda?

The RCIS project supports the President's Management Agenda goals to adopt best commercial practices to reduce operating costs, make it easier for employees to do their jobs, and use the Web to provide educational material to the public.

3. Are there any alternative sources in the public or private sectors that could perform this function?

No. Managing the Institution's collections is a core mission of the Smithsonian.

4. If so, explain why your agency did not select one of these alternatives.

5. Who are the customers for this project?

Customers for the RCIS system include NMNH scientists, museum curators, museum specialists, the registrar, visiting scientists and scholars, the research community, other natural history museums, and the public.

6. Who are the stakeholders of this project?

Key stakeholders for the RCIS project include the Smithsonian Under Secretary for Science, the Director, National Museum of Natural History, and the Associate Director for Research and Collections.

7. If this is a multi-agency initiative, identify the agencies and organizations affected by this initiative.
N/A

8. How will this investment reduce costs or improve efficiencies?

Through RCIS, the Museum will improve collection data quality, quantity, and access, thereby insuring full physical, legal and intellectual control over the national collections, and providing ready, cost-effective access to information about them to all those who need it. Once fully implemented, there will be a wide variety of audiences for NMNH collections information. Staff scientists, research scholars and the public will be able to access from their desktop computer inventories and information about collections—biological, anthropological, paleontological, and mineral—and about research support resources, such as art, photographs, video, and sound.

Digitizing collections and research information can help the Natural History Museum achieve its goals of dramatically enlarging its audiences and degree of engagement, enhancing its scientific research, and modernizing its collections management. Combined with electronic delivery over the web, researchers around the world who use the collections for scientific purposes—to identify species, to assess the biodiversity of a region, to study geological processes and history, to better understand human cultures and their impacts on the natural world—will be able to access data from their desktop computer. Such a resource is especially important for biodiversity studies. The projected uses, constituents (users), and quantifiable and non-quantifiable benefits of the NMNH RCIS, are detailed below.

- RCIS greatly improves collections tracking and allows increased compliance with collecting and transportation requirements. Because of increased compliance capability, NMNH avoids fines, legal entanglements, and refusals by foreign governments; improves monitoring of overdue loans; improves analysis and reporting on transaction frequencies; enhances consistency of data and improves records legibility; and enables reuse of authority lists. NMNH estimates that these enhancements will result in staff productivity savings amounting to \$900,000 annually and enable staff to devote more time to perform collections- and research-related tasks that otherwise would be impossible in the face of staff attrition.
- RCIS greatly improves collections inventory practices and provides full physical and legal control of collections. Inventories can be completed more reliably and rapidly. In one unit's project alone, automated inventory systems supported a ten-fold increase of objects inventoried per week at an accuracy rate of less than 1/100 percent errors.
- RCIS greatly improves collections management by recording information about registration, preservation, storage, and collections documentation activities in a standard, consistent manner; making the information easily accessible and improving communication about collections internally

and externally. RCIS will help Museum staff increase productivity by reducing the time to process records and report on collections transactions.

- The data about the collections in the NMNH are of immense importance to collections-based studies that are undertaken by staff at the Museum, as well as national and international scholars elsewhere: biological diversity, evolution of animals and plants, geology and geological process, hazards research, global change, human culture, human evolution, the impacts of geological change on human and biological systems, and the impacts of humans on biodiversity and climate. Museum-based research can be conducted using larger sample sizes, completed more easily, and pose different analytical questions through RCIS. The basic information gathering required by specimen-based research can now be done in far less time. Once fully implemented, NMNH estimates that RCIS will save between \$4.6 million to \$18.6 million (50–200 FTE) through conducting research electronically as opposed to paper-based methods. Data can be shared with national and international colleagues, supporting the worldwide research effort and cutting costs in universities, government agencies, and museums in the US and throughout the world. In some cases, electronically available data allows refinement of a critical identification by sharing an image, thus saving transportation costs and time. In other cases it facilitates the provision of data to other nations allowing NMNH to meet its collecting agreements.
- RCIS will provide electronic collections data to external research scholars through the Web. This will help NMNH achieve dramatic staff savings. One automated data set alone that is now available on the Web receives about 1,300 visits per month. This translates to annual labor savings of about \$515,000 because Museum staff will be able to work on other tasks such as capturing additional information about the collections rather than providing data to external research scholars and the public. Total savings will increase as more RCIS data are made available through the Web.
- RCIS will allow staff to focus on collections problems that require scientific and technical expertise and knowledge of the collections rather than on cumbersome data entry and multiple search tasks. RCIS authority lists greatly increase accuracy. Previously unavailable services will be supported and visitor services will be improved. NMNH projects labor savings of about \$130,000 annually.
- RCIS collections data will be linked via their identifications and geography to many other kinds of research data. The links to biochemistry, ecology, physiology, and physical climate will provide even greater understanding of the natural world. These data are of direct relevance to understanding biodiversity, how biodiversity has changed recently and over geological time, human impact on biodiversity, and climate change. Because of the way these links are made, many important questions impossible to answer now can be easily answered in the future. For example, specimens and samples can be linked to locality data to describe when and where they were collected. Linking data saves staff time and supports confirmation of data. For a research problem such as a biological checklist that requires data from multiple disciplines, a single query could eliminate multiple queries, each of which has a time cost. At an estimated minimal cost of \$33 per hour, and with some queries requiring up to an hour for well-organized data, much less data in need of enhancement and “cleaning”, savings can be projected in the thousands of dollars per query.
- As the RCIS database grows, it will become an increasingly useful reference tool for research scientists throughout the world. US and foreign governments and regulatory agencies, as well as non-governmental organizations associated with the use of natural resources, increasingly will use RCIS data: the Departments of Commerce and State in their interactions with foreign nations, the World Bank, and Conservation International are examples of those who have requested more ready access to NMNH data.

In policy and decisions related to climate change, biological diversity, land use, conservation, agriculture, and bioterrorism, RCIS data will increasingly have use and impact. NMNH and affiliated agency scientists are at the forefront in responding to invasions of non-native species of plants and animals by providing identifications of specimens and performing basic research. They provide the same service in understanding possible vectors for the movement of agents of bioterrorism. RCIS will facilitate access to collections records, thus speeding the process of identifying a specimen accurately, which is a critical step in the mitigation process. A 2000 GAO publication reports Cornell University's estimate that the US lost \$137.5 billion to damages caused by invasive species and to control efforts last year alone. Rapid identifications and the systematic research that reveals the unique habits and life cycles of invasive species are fundamental components in control efforts.

- RCIS will be invaluable for students at all levels all over the world. As an extended learning tool for students from K-12 and beyond, the links associated with the database will ease access to NMNH science. Similarly, because of the heavily illustrated nature of the MCS, the system also will be useful for other communicators in print and on TV and the Web. RCIS will allow users to access collections information to develop educational materials for K-12, college and post-graduate students, museum visitors on-site and off, and the public in general.
- RCIS will provide direct rapid access to shared collections information to efficiently and effectively manage exhibition planning and production; provide ready access to current scholarship, images, and other information to assist in developing intellectual content for exhibitions. RCIS will minimize the need to travel to the Suitland, Maryland, Museum Support Center to view collections and reduces wear and tear on them. RCIS also will allow other exhibit materials to be created efficiently and will provide the ability to make them available to the public via the Web.

9. List all other assets that interface with this asset.

RCIS relies on the Smithsonian IT Infrastructure to transfer data and make information available to the public via the Web.

Have these assets been reengineered as part of this project? Yes ____ No X.

I.C. Performance Goals and Measures (All Assets)

The effectiveness of the NMNH RCIS will be assessed by how well it allows the staff to carry out its mandate to manage the collections, which includes meeting the requirements of the Smithsonian Collections Management Policy, SD 600, and making them accessible to the public. Key performance measures include:

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY 2001)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
2005–2008	Management Excellence Manage Collections	<p>1. Average time to process transactions is 7.5 hrs.</p> <p>2. Average time to gather specimen-based research info is one day.</p> <p>3. Average time to compile annual collections statistics is one month.</p> <p>4. NMNH currently is not 100 % compliant with completion of cyclical inventories.</p> <p>5. NMNH maintains control over collections that are transacted (<i>i.e.</i>, loaned, borrowed). Physical control over collections housed in</p>	<p>1. Reduce time to process transactions to 2.5 hours.</p> <p>2. Reduce time to gather information required by specimen-based research to one hour.</p> <p>3. Compile annual collections statistics in one week.</p> <p>4. 100% compliance on completion of cyclical inventories.</p> <p>5. Maintain full legal and physical control over objects and specimens.</p>		<p>1. Average time to process transactions.</p> <p>2. Average time to gather information required by specimen-based research.</p> <p>3. Average time to compile annual collections statistics.</p> <p>4. Percentage of cyclical inventories completed on cyclical inventory plan.</p> <p>5. Legal control is maintained; documentation of physical control is made per cyclical inventory plan.</p>	

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY 2001)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
		<p>NMNH facilities is maintained but not documented via a routine inventory process.</p> <p>6. RCIS-generated declaration forms are not uniformly accepted at US ports of entry.</p>	<p>6. Uniform acceptance at all US ports of entry of RCIS-generated declaration forms.</p>		<p>6. Acceptance of RCIS-generated declaration forms at all US ports of entry.</p>	

I.D. Program management

1. Is there a program manager? Yes. Anna Weitzman has been assigned as the RCIS project manager.
2. Is there a contracting officer assigned to the project? If so, what is his/her name? Yes, Marianne Ingold has been assigned as the contracting officer.
3. Is there an Integrated Project Team? Yes
- 3.A. If so, list the skill set represented.

The project team follows a disciplined system development life cycle process prescribed by Smithsonian Directive 920 and tailored for operating, maintaining, and enhancing a commercial software product. In order to effectively operate, maintain, and enhance RCIS, the Natural History Museum has established a project team concept that recognizes the complementary roles of scientists, museum curators, collections staff, IT staff, and other supporting staff. Work groups composed of functional staff and technical staff are formed to implement additional modules, databases, and system upgrades and enhancements.

4. Is there a sponsor/owner? Yes, the Director, National Museum of Natural History

I.E. Alternatives Analysis

1. The Smithsonian prepared an economic analysis that compares operating and maintaining the current 22 legacy systems with implementing a commercial collections management software product and integrating it with a custom-developed application that manages acquisitions, loans, borrows, exchanges, and disposals.

Alternative	Description
Alternative 1	<i>Maintain current systems:</i> The NMNH has been using two mainframe systems to support its catalogue. Those systems are not based on current operating systems; they used outdated programming languages, lack documentation, are not scalable, and cannot be modified or integrated to support the increased demand for services, data quality, or linking images. Various individuals in the Museum use 20 different desktop applications to support collections and research catalogue functions. Desktop applications do not provide adequate functionality, some are inadequately supported, and no integration exists among the mainframe those applications.
Alternative 2	<i>Implement a commercial collections management software product.</i> Alternative 2 includes purchasing a commercial software product for the cataloging functions, obtaining contractual services to help tailor the commercial software product to reflect NMNH business processes, to convert legacy data, and to provide training. This alternative also includes combining the functionality and data that are currently in an in-house developed RCIS sub-system to help manage acquisitions, loans, borrows, exchanges, and disposals with the MCS into a single commercial software system.

2. Summarize the results of your life-cycle cost analysis performed for each investment and the underlying assumptions.

The cost to operate and maintain the Natural History Museum's legacy systems during the 10-year system life is about \$57.2 million. The cost to implement and operate the RCIS system and to operate legacy systems during the phase-in period of the 10-year system life is \$51.3 million. This is about \$5.9 million less than the cost to operate and maintain the RCIS. The Smithsonian Executive Committee did not approve NMNH's FY 2004 request for additional funding for data capture and data content enhancement. The economic analysis has not been revised to reflect this decision.

3. Which alternative was chosen and why? Define the Return on Investment (ROI).

The Institution selected alternative 2 – Implement a commercial collections management software product. Because of the extreme deficiencies in the legacy systems, prior experience with custom software development, and the emergence in the international museum community of several firms providing off-the-shelf collections catalogue software, NMNH determined that implementing a commercial collections management software product was preferable to developing a new in-house system or maintaining legacy in-house systems. By implementing a commercial software product, the NMNH will minimize risk by acquiring a fully developed and functional system and will comply with federal IT management guidance that encourages the acquisition of commercial software products over developing application software.

3. A. Are there any quantitative benefits that will be achieved through this investment (e.g., systems savings, cost avoidance, stakeholder benefits, etc)?

The Smithsonian prepared an economic analysis that compared the 2 alternatives over a 10-year systems life. The economic analysis included a sensitivity analysis that considered "best case" and "worst case" scenarios. The analysis also took into account the present operating costs of the systems

being replaced during the implementation period. During the 10-year systems life, the Smithsonian expects to realize \$72.7 million in undiscounted benefits.

Under the "best case" or "expected outcome" scenario, the economic benefits generated by RCIS during the 10-year system life outweigh the investment costs by \$21.4 million. The following chart is based on legacy operating cost avoidance and workforce productivity increases and other staff time savings in areas such as collections tracking, research, and retrieval support for visitors. It also took into account the present operating costs of the systems being replaced. The chart that follows depicts the "best case" scenario.

RCIS Best Case Scenario
(\$ in thousands)

Net Present Value and Related Outcome Using Mid-Year Discount Factors (7%)

Fiscal Year	Expected Yearly Cost* (\$000)	Expected Yearly Benefit (\$000)	Discount Factors for 7%	Present Value of Costs (\$000) (Col 2 x Col 4)	Present Value of Benefits (\$000) (Col 3 x Col 4)	Amount Benefits Exceed Costs (\$000)
-1	-2	-3	-4	-5	-6	-7
FY2002	\$3,568	\$6,236	0.9667	\$3,449	\$6,028	\$2,579
FY2003	\$3,368	\$6,757	0.9035	\$3,043	\$6,105	\$5,641
FY2004	\$5,087	\$7,277	0.8444	\$4,295	\$6,145	\$7,490
FY2005	\$5,958	\$8,027	0.7891	\$4,701	\$6,334	\$9,123
FY2006	\$5,068	\$7,277	0.7375	\$3,738	\$5,367	\$10,752
FY2007	\$5,658	\$7,277	0.6893	\$3,900	\$5,016	\$11,869
FY2008	\$5,658	\$7,277	0.6442	\$3,645	\$4,688	\$12,912
FY2009	\$5,658	\$7,277	0.6020	\$3,406	\$4,381	\$13,887
FY2010	\$5,658	\$7,277	0.5626	\$3,183	\$4,094	\$14,798
FY2011	\$5,658	\$8,027	0.5258	\$2,975	\$4,221	\$16,043
Total	\$51,339	\$72,711		\$36,336	\$52,379	\$16,043

* Includes Development & Ongoing Costs.

The "worst case" scenario projects a 25 percent decrease in workforce productivity increases. Under the "worst case" scenario, the economic benefits generated by RCIS during the 10-year system life outweigh the investment costs by \$6.9 million. The chart that follows depicts the "worst case" scenario.

RCIS Worst Case Scenario
(\$ in thousands)

Expected Savings are only 75% of Expected Staff Related Savings
Net Present Value and Related Outcome Using Mid-Year Discount Factors (7%)

Fiscal Year	Expected Yearly Cost* (\$000)	Expected Yearly Benefit (\$000)	Discount Factors for 7%	Present Value of Costs (\$000) (Col 2 x Col 4)	Present Value of Benefits (\$000) (Col 3 x Col 4)	Amount Benefits Exceed Costs (\$000)
-1	-2	-3	-4	-5	-6	-7
FY2002	\$3,568	\$4,686	0.9667	\$3,449	\$4,530	\$1,081
FY2003	\$3,368	\$5,207	0.9035	\$3,043	\$4,704	\$2,742
FY2004	\$5,087	\$5,728	0.8444	\$4,295	\$4,836	\$3,283
FY2005	\$5,958	\$6,478	0.7891	\$4,701	\$5,111	\$3,693
FY2006	\$5,068	\$5,728	0.7375	\$3,738	\$4,224	\$4,180
FY2007	\$5,658	\$5,728	0.6893	\$3,900	\$3,948	\$4,228
FY2008	\$5,658	\$5,728	0.6442	\$3,645	\$3,690	\$4,272
FY2009	\$5,658	\$5,728	0.6020	\$3,406	\$3,448	\$4,314
FY2010	\$5,658	\$5,728	0.5626	\$3,183	\$3,222	\$4,353
FY2011	\$5,658	\$6,478	0.5258	\$2,975	\$3,406	\$4,784
Total	\$51,339	\$57,213		\$36,336	\$41,120	\$4,784

*Includes Development & Ongoing Costs

Overall Note: Benefits continue to exceed costs until expected savings are approximately 65% lower than anticipated

4. What was the date of your cost benefit analysis? March 2002

I.F. Risk Inventory and Assessment

Because the commercial software that underlies NMNH's RCIS has been successfully implemented in many museums around the world, the risks associated with new system development are minimized. The following major project-related risks can adversely affect project cost and schedule:

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
N/A	Organizational and Change Management				
N/A	Business				
N/A	Data/Info				

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
Nov 2001	Technology	SI will not have a robust IT infrastructure in place	Medium	SI has initiated complementary project to modernize its IT infrastructure incrementally through FY 2005. This will help ensure that museum staff can access RCIS.	SI has increased contractor support for help desk and network services; bandwidth to the MSC; and upgraded network backbone switches.
March 2000	Strategic	NMNH will not have a modern collections management system in place.	Low	The RCIS project meets one of the Secretary's strategic goals to modernize the collections management systems.	The first phase of RCIS was successfully implemented in August 2001.
July 2002	Security	The IT infrastructure will not have adequate intrusion detection and firewalls in place.	Medium	SI plans to implement an adequate intrusion detection system and redesigned firewall in FY 2004.	SI has reduced the number of services passing through the existing firewall.
N/A	Privacy	RCIS does not contain Privacy Act data.			
Nov 2001	Project Resources	The RCIS project will not be adequately funded.	High	1. Seek other sources of funds. 2. Defer data capture and content enhancement.	RCIS project has deferred data capture as FY 2004 funds were not approved.

1. What is the date of your risk management plan? The Institution did not prepare a risk management plan for the RCIS project.

I.G. Acquisition strategy

1. Will you use a single contract or several contracts to accomplish this project?

The Smithsonian is using multiple contracts to support the RCIS project.

- 1.A. If multiple contracts are planned, explain how they are related to each other, and how each supports the project performance goals.

The NMNH completed a requirement analysis and market survey of commercial collections management software products in 1999. KE Software's *EMu* (on the GSA schedule) was the only product that met NMNH requirements. A contract for system integration and data migration services was signed in 2000. The museum has been incrementally migrating the catalogue sub-system of the RCIS to operate on *EMu* software platform since August 2000. The Smithsonian has relied on existing federal contracts and General Services Administration (GSA) schedules to acquire equipment and other commercial software products to implement, operate, maintain, and enhance RCIS.

The TM sub-system, a custom software development effort, is currently being maintained at NMNH. TM provides a great deal of customization necessary to manage transactions in a complex environment. NMNH has determined that implementing a commercial collections management software product for these functions is preferable to continuing to maintain and enhance the existing TM sub-system.

2. What type(s) of contract(s) will you use? Fixed price.

- 2.A. For cost reimbursement contracts, define risk not sufficiently covered by the risk mitigation plan to require this type of contract. Not applicable.

3. Will you use financial incentives to motivate contractor performance? No.

4. Will you use competition to select suppliers? The NMNH has already contracted with the major supplier and plans to use existing government-wide contracts GSA schedule for other need hardware, software, and services.

5. Will you use commercially available or COTS products, or custom-designed products?

The Smithsonian has purchased KE Software's *EMu* commercial collections management software package.

6. What is the date of your acquisition plan?

NMNH completed a market survey and requirements analysis in September 1999. Based on the market survey results, NMNH acquired KE Software's *EMu* through the GSA schedule.

7. How will you ensure Section 508 compliance?

KE Software's *EMu* client is Windows 32 bit-based, making it compliant with assisted technology readers. All Web interfaces to *EMu* are, and will continue to be, fully compliant.

I.H. Project and Funding Plan

The information required by this section will be provided by your earned value management system.

The Smithsonian is not able to implement an earned value management system until FY 2005 after deployment of the Projects and Time and Labor modules of the Enterprise Resource Planning System.

I.H.1. Description of Performance Based Management System

To help assure that collections management requirements are being met, the RCIS Project Manager, under the direction of the Associate Director for Research and Collections, leads a cross-functional team of museum researchers, collections managers, and IT staff to prioritize RCIS enhancements and software upgrades. The RCIS project has continuing responsibility for ensuring that functional requirements are satisfied in a timely and cost-effective manner, for monitoring progress and results of developments, and for taking action when needed. To help manage and control the project, the RCIS project manager prepares and monitors detailed project plans that contain specifics on such tasks as data migration and enhancement, integration, training, testing, implementation, and related activities. The Institution uses *Microsoft Project Central* for tracking scheduled performance against project plan milestones. This helps collections and research staff and the project manager identify problem areas and take corrective actions when actual results deviate significantly from plans. The RCIS Project Manager ensures that the necessary information from the project management control system is kept up to date and is provided to the chain of command in a timely manner. These mechanisms have provided a stable mechanism for assessing day-to-day RCIS operations, data quality, and new developments.

I.H.2. Original Baseline

Cost and Schedule Goals: Original Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Deploy Catalogue subsystem	08/2000	09/2003	1,156	1,964	Smithsonian
Migrate Legacy Data	08/2000	01/2003	913	144	Smithsonian
Data Capture	08/2000	N/A	N/A	11,251	Smithsonian
Data Content Enhancement	08/2000	N/A	N/A	13,898	Smithsonian
Public Access	08/2000	N/A	N/A	584	Smithsonian
Completion date: 09/2003*			Total cost estimate at completion: 27,841**		

* The estimated completion date is for deploying the catalog subsystem. Data content enhancement, data capture, and public access will continue until all collections data has been captured.

** Estimate for completion is for development only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of the Summary of Spending for Project Stages.

I.H.3. Proposed baseline/current baseline

OMB has not approved changes to the original baseline.

Cost and Schedule Goals: Proposed <u> X </u> or Current (OMB-Approved) <u> </u> Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Deploy Catalogue subsystem	08/2000	12/2003	1,248	2,052	Smithsonian
Migrate Legacy Data	08/2000	09/2003	1,157	144	Smithsonian
Data Capture	08/2000	N/A	N/A	11,251	Smithsonian
Data Content Enhancement	08/2000	N/A	N/A	13,898	Smithsonian
Public Access	08/2000	N/A	N/A	584	Smithsonian
Migrate TMS	05/2004	06/2005	426	250	Smithsonian
Completion date: 06/2005*				Total cost estimate at completion: 28,179**	

* The estimated completion date is for migrating TMS. Data content enhancement, data capture, and public access will continue until all collections data has been captured.

** Estimate for completion is for development only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of the Summary of Spending for Project Stages.

The proposed current baseline reflects adjustments to the timeline due to resource issues and the decision to discontinue the Transaction Management System (TMS) as a separate, in-house maintained subsystem. NMNH now plans to combine the two subsystems of the RCIS into a single system, thus needing fewer server upgrades. Additional funding for data capture that was not approved for FY 2004 and the recent loss of staff affect deployment of the Museum Cataloging System, especially in making data available on the Web. Timelines for deployment are thus somewhat extended. In consideration of current staffing levels, the number of additional records that now can be added to the RCIS annually has been lowered substantially. This undesirable, but realistic, scaling reflects the NMNH expectation that staff attrition and physical security-related changes in Smithsonian priorities will cause redirections from specimen cataloging to managing collections at risk, such as the move of specimens stored in alcohol from the Natural History Building to the Museum Support Center.

I.H.4. Actual performance and variance from OMB approved baseline

Comparison of OMB-Approved Baseline and Actual Outcome Phase/Segment/Module of a Project									
Description of Milestone	OMB-Approved Baseline					Actual Outcome			
	Schedule			Planned Cost (\$ 000)	Source of Funds	Schedule		Percent Complete	Actual Cost
	Start Date	End Date	Duration (in days)			Start Date	End Date		
Deploy MCS	8/00	09/03	1,156	2,052	SI	8/00	TBD	73%	
Migrate Legacy Data	8/00	01/03	913	144	SI	8/00	TBD	80%	
Data capture	8/00	N/A	N/A	11,251	SI	8/00	TBD		
Data content Enhancement	8/00	N/A	N/A	13,869	SI	8/00	TBD		
Public Access	8/00		N/A	588	SI	8/00	TBD		
Migrate TMS	5/04	6/05	N/A	250	SI	TBD	TBD	0%	
Completion date: 06/2005*				27,911					

* The estimated completion date is for migrating TMS. Data content enhancement, data capture, and public access will continue until all collections data has been captured.

** Estimate for completion is for development only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

Part II: ADDITIONAL BUSINESS CASE CRITERIA FOR INFORMATION TECHNOLOGY**II. A. Enterprise Architecture****II.A.1 Business**

A. Is this project identified in your agency's enterprise architecture? Yes

B. Explain how this project conforms to your departmental (entire agency) enterprise architecture.

The RCIS supports the major business line of the Institution—collections management. The Smithsonian Institution completed a baseline inventory of automated information systems and IT products in March 2001 as part of a companion IT project to establish an enterprise IT architecture and deploy a managed IT infrastructure. Based on an analysis of the IT baseline, the Smithsonian defined a conceptual target IT architecture in July 2001 and published a Technical Reference Model (TRM) in January 2002. The TRM defines a comprehensive set of information technology standards, services, protocols, and products that define the target technical environment for the acquisition, development, and support of Smithsonian application systems, enterprise architecture, and the supporting IT infrastructure. The Technical Reference Model is based on the most recent version of the Application Portability Profile of the National Institute of Standards and Technology. The Institution has selected, where appropriate, information technology components that best support an open system environment for operating its application systems. The underlying hardware and software platforms that RCIS operates on are consistent with the Smithsonian enterprise IT architecture.

C. Identify the Lines of Business and Sub-Functions within the Federal Enterprise Architecture Business Reference Model that will be supported by this initiative.

RCIS supports the Internal Operations and Infrastructure and the Education lines of business and the sub-functions of Supply Chain Management (inventory control of collections).

D. Briefly describe how this initiative supports the identified Lines of Business and Sub-Functions of the Federal Business Architecture.

RCIS supports the functions of collections tracking and Inventory, collections management and conservation, collections-based research, curriculum development for K-12 and above, public outreach through the Web, and exhibition planning and development.

E. Was this project approved through the EA Review committee at your agency?

Yes. The RCIS project was approved by the Capital Planning Board on May 14, 2002.

F. What are the major process simplification/reengineering/design projects that are required as part of this initiative?

Through the RCIS project the Natural History Museum has standardized and defined business processes for collections management, including transaction processing and management of data related to natural history collections and research.

G. What are the major organization restructuring, training, and change management projects that are required?

There are no major organization restructuring or change management projects. Training is part of the RCIS project.

H. What are the Agency lines of business involved in this project?

Collections Management and Public Outreach.

I. What are the implications for the agency business architecture?

Through the RCIS project, the Natural History Museum will integrate and fully automate more than five million records now held in 22 legacy systems, as well as additional objects and specimens that have been and will be accessioned. RCIS will support internal and worldwide research, while also helping to inventory and manage the Museum's holdings and automate processes related to custody and legal ownership of collections.

II.A.2 Data

A. What types of data will be used in this project?

Collections management and scientific research data.

B. Does the data needed for this project already exist at the Federal, State or Local level? If so, what are your plans to gain access to that data?

The data used in the RCIS is internal Smithsonian data. It does not exist at the Federal, State or Local level.

C. Are their legal reasons why the data can't be transferred? If so, what are they and did you address them in the barriers and risk sections above. N/A

D. If this initiative processes spatial data, identify planned investments for spatial data and demonstrate how the agency ensures compliance with the Federal Geographic Data Committee standards required by OMB Circular A-16. N/A

II.A.3 Application and Technology

A. Discuss this initiative/project in relationship to the application and technology layers of the EA. Include a discussion of hardware, applications, infrastructure, etc.

The RCIS is a business application that supports the primary business line of the Institution—collections management. The hardware platform, database, and system components are contained in the Technical Reference Model.

B. Are all of the hardware, applications, and infrastructure requirements for this project included in the EA Technical Reference Model? Yes. If not, please explain

II.B. Security and Privacy

II.B.1 How is security provided and funded for this project?

RCIS maintains critical information on collections and collections management activities and requires a high degree of data integrity. The Smithsonian protects sensitive data from unauthorized access and/or

disclosure and assures data integrity when stored in electronic form, as well as security from unauthorized alteration or modification. RCIS is controlled with respect to access, authority to modify, and ability to operate. Natural History Museum staff access the systems through desktop workstations. RCIS requires users to authenticate their identity through the entry of a user ID and password. The system allows access only to authorized users based on user profiles. The public is provided access to selected data through the Internet. Sensitive data are protected from public access through a firewall. The Smithsonian will document security requirements in a Security Plan. The plan will capture security safeguards now in place and planned for RCIS. The Associate Director for Research and Collections, Research and Collections Informatics Office, with the guidance and assistance of the Assistant Director for Automated Data Processing and the Institution's Chief Information Officer, will ensure that adequate controls are in place to assure the security and integrity of RCIS data.

A. What is the total dollar amount allocated to security for this project?

Security costs are included in the system development and operations costs and not broken out separately.

II.B.2 Does the project meet the following security requirements of the Government Information Security Reform Act, OMB policy, and NIST guidance?

A. Does the project have an up-to-date security plan that meets the requirements of OMB policy and NIST guidance? What is the date of the plan?

The RCIS security plan will be completed in July 2003.

B. Has the project undergone an approved certification and accreditation process? No

C. Have the management, operational, and technical security controls been tested for effectiveness?
No

D. Have all system users been appropriately trained in the past year, including rules of behavior and consequences for violating the rules? Yes. In addition, the Institution published Smithsonian Directive 931, *Use of Computers and Networks*, on August 5, 2002. The Directive prescribes rules of employee behavior and identifies potential consequences. The Institution will implement an on-line computer awareness tutorial in FY 2003 and require employees to take the tutorial annually.

E. How has incident-handling capability been incorporated into the system, including intrusion detection, monitoring and audit log reviews? The Smithsonian's Information System Security Officer manages the response to major computer security incidents, which are reported to the FedCIRC Operation Center. The FY 2004 budget request includes funding to implement an adequate intrusion detection system.

F. Is this system operated by contractors either on-site or at a contractor facility? No. If yes, does any such contract include specific security requirements required by law and policy? How are contractor security procedures monitored, verified, and validated by the agency?

II.B.3 How does the agency ensure the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access?

RCIS does not maintain Privacy Act data.

II.B.4 How does the agency ensure that the handling of personal information is consistent with relevant government-wide and agency policies?

Not applicable. RCIS does not contain personal information.

II.C. Government Paperwork Elimination Act (GPEA)

RCIS supports the electronic government goals of the Government Paperwork Reduction Act (GPEA). Through RCIS, the Natural History Museum has replaced cumbersome manual paper processes with electronic processes and is reducing the handling and usage of its massive paper files and photographs through digitization. It also will provide selected research information to the public through the Internet. Since RCIS primarily supports collections management, research and educational outreach needs, and will not place a paperwork burden on the public, the GPEA provisions are not applicable.

PART I: CAPITAL ASSET PLAN AND BUSINESS CASE

Agency: Smithsonian Institution

Bureau: (OIA)

Account Title: Salaries and Expenses

Account Identification Code: 33-0100-0

Program Activity:

Name of Project: Smithsonian Institution Research & Information System

Unique Project Identifier: 452-00-01-02-01-1004-00

Project Initiation Date: 4/1997

Project Planned Completion Date: 12/2008

This Project is: Initial Concept _____ Planning _____ Full Acquisition _____ Steady State _____

Mixed Life Cycle XProject/useful segment is funded: Incrementally _____ Fully XWas this project approved by OMB for previous Year Budget Cycle? Yes X NoDid the Executive/Investment Review Committee approve funding Yes X No

for this project this year?

Did the CFO review the cost goal? Yes X NoDid the Procurement Executive review the acquisition strategy? Yes X NoIs this investment included in your agency's annual performance plan or Yes X No

Multiple agency annual performance plan?

Does the project support homeland security goals and objectives, i.e., Yes No X1) improve border and transportation security, 2) combat bio-terrorism,
3) enhance first responder programs; 4) improve information sharing to
decrease response times for actions and improve the quality of decision
making?Is this project information technology (see Section 300.4(e) for a definition)? Yes X No*For information technology projects only:*a. Is this project a financial management system Yes X No

(see section 42.2 for a definition)?

If so, does this project address a FFMIA compliance area? Yes No X

If yes, which compliance area?

b. Does this project implement electronic transactions or record keeping
that is covered by the Government Paperwork Elimination Act (GPEA) Yes No Xc. Was a privacy impact assessment performed for this project? Yes No Xd. Was this project reviewed as part of the FY 2002 Government Yes No X

Information Security Reform Act review process?

If yes, were any weaknesses found? Yes No

Have the weaknesses been incorporated into the agency's corrective
action plans?e. Has this project been identified as a national critical operation Yes No X

or asset by a Project Matrix review or other agency determination?

e.1 If no, is this an agency mission critical or essential service, system, operation, or asset (such as those documented in the agency's COOP Plan), other than those identified above as national critical infrastructures?

Yes X No

PART I: SUMMARY OF SPENDING FOR PROJECT STAGES

(\$ in thousands)

Project Costs	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total
Deploy SIRIS SW Modules ¹	8	91	5	0	0	0	0	0	104
Replace <i>Horizon</i> ²	0	0	0	150	1,068	278	88	0	1,584
Data Content and Enhancement ³	424	790	901	818	832	858	875	893	6,391
Acquisition Budgetary Resources:	432	881	906	968	1,900	1,136	963	893	8,079
Outlays:	432	766	903	960	1,779	1,235	986	902	7,963
Application SW Maintenance ⁴	732	725	714	650	689	694	819	927	5,950
IT Operations ⁵	136	174	215	237	201	1,105	380	386	2,834
Maintenance Budgetary Resources:	868	899	929	887	890	1,799	1,199	1,313	8,784
Outlays:	868	782	925	893	804	1,766	1,277	1,298	8,613
Total⁶ Budgetary Resources:	1,300	1,780	1,835	1,855	2,790	2,935	2,162	2,206	16,863
Outlays:	1,300	1,548	1,828	1,853	2,583	3,001	2,263	2,200	16,576

I.A. Project Description

The Smithsonian Institution Research Information System (SIRIS) is an online, pan-Institutional system that supports research, education, exhibitions, and public programs. SIRIS serves the operational needs of 22 libraries, 14 archives, and research offices in 19 Smithsonian units to manage and control their collections. The Institution acquired a commercial library management system in March 1999 and deployed the initial version in December 1999. The Smithsonian plans to deploy the last software module – patron authentication - early in FY 2003. SIRIS members will continue to add and enhance data content through the next decade. The Smithsonian plans to conduct a market survey in FY 2004 to benchmark its current system with market standards. Based on the survey results, the Smithsonian plans to competitively acquire a commercial library management system to better meet the Institution's needs.

¹ Archives Tracking, Patron Authentication, and Serial Control

² The Institution plans to conduct a market survey in FY 2004 and replace the existing commercial library management software product in FY 2005 based on survey results.

³ Includes the migration of legacy data, initial data entry, enriching existing data, and the digitization and linking of images.

⁴ Includes application software costs such as licensing fees, associated staff and contractor costs.

⁵ Includes hardware replacement and maintenance, systems software, and operations staff.

⁶ In addition, the Institution expends about \$256,000 annually from its trust funds in the form of about 3.3 FTE to support SIRIS.

The SIRIS Management Committee approved the SIRIS project in April 1997. The Committee sets policy, provides management oversight, prioritizes SIRIS enhancements, software upgrades, and additional databases. SIRIS members obtain funds for data enhancement through their unit as part of the annual budget formulation process.

I.B. Justification

1. How does this investment support your agency's mission and strategic objectives?

SIRIS supports the Smithsonian's strategic objectives to judiciously build and refine, care for, and manage the national collections for current and future generations and achieve management excellence. Specifically, it supports an Institutional strategy to implement and maintain state-of-the-art collections management systems.

SIRIS has been in operation since 1985. Because libraries and archives have similar collections management functions, running a shared system to control them minimizes duplication and makes the collections more accessible to the public. SIRIS relies on established national standards to manage, describe, and provide access to more than three million records held primarily by the Institution's libraries, archives, art inventories, and research units. SIRIS provides ubiquitous access, for staff and public alike, to SI research information resources that include hyperlinks to images, videos, sound files, and websites related to the records returned. SIRIS serves the operational needs of its members in managing and controlling their collections. SIRIS enables quick and easy searching of the 22 libraries, 14 archives, 6 databases, and research offices in the 20 Smithsonian units that follow:

Anacostia Museum & Center for African American History & Culture
Archives of American Art
Center for Folklife & Cultural Heritage
Cooper-Hewitt, National Design Museum
Hirshhorn Museum & Sculpture Garden
National Air & Space Museum
National Museum of African Art
National Museum of American History
National Museum of Natural History
National Museum of the American Indian
National Portrait Gallery
National Postal Museum
National Zoological Park
Office of Facilities Engineering & Operations
Smithsonian American Art Museum
Smithsonian Center for Education & Museum Studies
Smithsonian Environmental Research Center
Smithsonian Institution Archives
Smithsonian Institution Libraries
Smithsonian Tropical Research Institute

The holdings of SIRIS include:

- *The Smithsonian's Library Catalogs.* Smithsonian Institution Libraries provides access to over 1.4 million volumes representing journal titles, maps, computer files, video recordings, sheet music and trade literature in the SI Libraries collections. The Libraries' catalog also contains over 1 million name, subject, and series authority records. SI Libraries collections are particularly strong in natural history, tropical biology, and Chesapeake Bay area ecology; anthropology; American and African American

history and culture; postal, horticulture and garden history; the history of science and technology; aerospace history, astronomy, and planetary sciences; African, American, Asian, contemporary, and design and decorative art; conservation science, and museum studies. In addition to providing access to the Libraries' collections, the SIRIS web catalog points the web user to SI Libraries' digital editions of rare books, manuscripts, trade literature and bibliographies. SI Libraries' growing number of digital editions represents a broad range of subjects.

- *Archives & Manuscripts Catalogs.* The Archives and Manuscripts Catalog contains nearly 350,000 descriptions of archival, manuscript, and special collection resources at the Smithsonian Institution, including Institutional and organizational records, personal papers, manuscripts, special collections, oral histories, works of art, photographs, sound recordings, films, and other special media materials, from seven archival repositories at the Smithsonian. The records are stored and retrieved together in the catalog. This catalog contains 70,000 linkages to multimedia files. The search results are listed in a combined listing with name of the cataloging office clearly labeled. The following archives offices contribute the cataloged records:
 - Archives Center—National Museum of American History
 - Archives of American Art
 - Archives of American Gardens
 - Eliot Elisofon Photographic Archives—National Museum of African Art
 - Human Studies Film Archives
 - National Anthropological Archives
 - Smithsonian Institution Archives
 - National Air & Space Museum, Archives Center
 - Center for Folklife & Cultural Heritage Archives
- *Art Inventories.* The Smithsonian American Art Museum has established two comprehensive listings: the Inventory of American Paintings Executed before 1914 and the Inventory of American Sculpture. Together, the Art Inventories provide information on over 335,000 artworks in public and private collections worldwide. Information is compiled from a variety of sources, including published catalogues, collection checklists, reports from collectors, journals and magazines, and preservation inventories. In-depth information on outdoor sculptures from a nationwide survey known as Save Outdoor Sculpture! (SOS!) is a key component of the database. Images of the art works have not yet been digitally scanned and are not available for online viewing.
- *History of the Smithsonian Chronology.* The History of Smithsonian Chronology is a list of significant events in the history of the Smithsonian Institution, from the life of James Smithson in the 1700s to the present. The database is maintained by the Institutional History Division of the Smithsonian Institution Archives and contains c. 2500 entries. Each entry consists of an event title, date, abstract, references, explanatory notes, and index terms. Entries were compiled from primary sources in the Smithsonian Institution Archives and secondary sources documenting the history of the Institution.
- *Specialized Bibliographies.* This catalog describes specialized research bibliographies. Included are the Cephalopod Bibliography, the History of the Smithsonian Bibliography, the Museum Studies Database and the Marine Mammals Bibliography. The bibliographies are stored together in a common catalog. This database contains over 15,000 bibliographic records and over 20,000 name and subject authority records.
- *Juley Photographic Archive.* The Peter A. Juley & Son Collection at the Smithsonian American Art Museum is a large photographic archive that documents the work of approximately 10,000 American artists in 127,000 black-and-white images. Peter A. Juley was a commercial photographer, who specialized in photographing American art and artists. His business was in operation from 1896-1975.

2. How does it support the strategic goals from the President's Management Agenda?

The SIRIS project supports the President's Management Agenda goals to adopt best commercial practices to reduce operating costs and make it simpler for employees to do their jobs and to use the web to provide educational material to the public.

3. Are there any alternative sources in the public or private sectors that could perform this function?

No. Managing the Institution's libraries and archives is a core mission of the Smithsonian.

4. If so, explain why your agency did not select one of these alternatives.

5. Who are the customers for this project?

Customers for the system include Smithsonian archivists, librarians, museum curators, museum specialists, visiting research scholars, library community, archive community, educational institutions, and the public.

6. Who are the stakeholders of this project?

Key stakeholders for the SIRIS project include the Director, Smithsonian Institution Libraries, the Director, Smithsonian Institution Archives, Directors of SIRIS member units and the Chief Information Officer.

7. If this is a multi-agency initiative, identify the agencies and organizations affected by this initiative.
N/A

8. How will this investment reduce costs or improve efficiencies?

The multiple branches of Smithsonian Institution Libraries (SIL) hold more than 1.5 million volumes, while the archival units using SIRIS house over 45,000 linear feet of documentary materials. The management of these holdings, and the ability of internal and external researchers to learn of their contents, requires continuing Institutional support for a robust, technologically current, well-maintained Smithsonian Institution Research Information System. Students, libraries, archives, and researchers use SIRIS on a 7/24 basis. SIRIS allows users to rapidly search the Institution's library and archival collections, art inventories, and other important information resources through the web 24X7 to develop educational materials for K-12, college and post-graduate students; museum visitors on-site and off; and other learners. SIRIS greatly improves library and archive inventory management practices and provides full physical and legal control of collections. Inventories can be completed more reliably and rapidly. SIRIS has allowed units to eliminate paper records for inventory and tracking of their collections resulting in savings and increased efficiencies.

9. List all other assets that interface with this asset.

SIRIS relies on the Smithsonian IT Infrastructure to transfer data and to make information available to the public via the web. The SIRIS library purchasing software module will interface with the Enterprise Resource Planning System.

Have these assets been reengineered as part of this project? Yes ____ No X.

I.C. Performance Goals and Measures (All Assets)

The effectiveness of the SIRS will be assessed by how well it allows the staff to carry out its mandate to manage the library and archives collections and make them accessible to the public. Key performance measures include:

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY 2001)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
2002–2008	Manage Collections Public Outreach	1. 180,000 public searches.	1. Deliver research information to the public.	1. 192, 241 public searches.	1. Increase number of public searches by 20% per year.	1. Number of public searches increased by 7%.
		2. 1,355,728 bibliographic records.	2. Increase number of records by 20,000 per year.	2. 1,418,728 bibliographic records.	2. Increase number of records by 20,000 per year.	2. Added 63,000 records.
		3. 17 SIRIS member units.	3. Increase number of SIRIS member units.	3. 20 SIRIS member units.	3. Number of SIRIS members.	3. Added 2 SIRIS members.
		4. 59,230 links to images.	4. Enhance education usefulness.	4. 89,230 links to images	4. Increase number of image and media links by 20 % per year.	4. Created 30,000 links – an increase of 50%.
					5. Survey questionnaire.	5. Did not conduct survey.

I.D. Program management

1. Is there a program manager? Yes. Joe Russo has been assigned as the SIRIS project manager.
2. Is there a contracting officer assigned to the project? If so, what is his/her name? Yes, Brian Biggs has been assigned as the contracting officer.
3. Is there an Integrated Project Team? Yes
- 3.A. If so, list the skill set represented.

The project team follows a disciplined system development life cycle process prescribed by Smithsonian Directive 920 and tailored for operating, maintaining, and enhancing a commercial software product. In order to effectively operate, maintain, and enhance SIRIS, the Institution has established a project team concept that recognizes the complementary roles of librarians, archivists, researchers, curators, system developers, and other supporting organizations. Work Groups composed of functional staff from SIRIS member units and technical staff from the OCIO are formed to implement additional modules, databases, and system upgrades and enhancements. The SIRIS Management Committee oversees the evolution of SIRIS and provides programmatic direction to the SIRIS project manager.

4. Is there a sponsor/owner? Chair, SIRIS Management Committee

I.E. Alternatives Analysis

The Smithsonian determined that implementing a commercial library management software product was preferable to developing a new in-house system or maintaining the legacy in-house system. The following alternatives were considered in this analysis:

Alternative	Description
Alternative 1	<i>Implement a commercial library management software product.</i> This was the preferred alternative and included purchasing commercial software, the production processing environment, and integration services. In May 1998, the Institution completed a market survey of commercial library management systems available. The primary objective of the survey was to find a commercial product that could replace the technologically obsolete hardware and software platforms that SIRIS operated on. The survey clearly showed superior products available on the commercial market that could meet the Institution's requirements. By implementing a commercial software product, the Smithsonian minimized risk by acquiring a fully developed and functional system.
Alternative 2	Maintain current system. The Institution was faced with operating and maintaining a technologically obsolete system. The foundation hardware that SIRIS operated on was introduced into the marketplace in 1981 and the operating system was first introduced in 1965. The vendor had already announced that the operating system would no longer be supported. The Institution could not continue to operate and maintain the legacy SIRIS system.

2. Summarize the results of your lifecycle cost analysis performed for each investment and the underlying assumptions.

The Institution did not perform a lifecycle cost analysis for this project.

3. Which alternative was chosen and why? Define the Return on Investment (ROI).

The Institution selected Alternative 1—Implement a commercial library management software product. In implementing a commercial software product the Institution minimized its risk by acquiring a fully

developed and functional system and complied with federal IT management guidance that encourages the acquisition of commercial software products over developing application software.

3. A. Are there any quantitative benefits that will be achieved through this investment (e.g., systems savings, cost avoidance, stakeholder benefits, etc)?

The Institution did not quantify benefits that will be achieved by automating library and archives management.

3. B. For alternative selected, provide financial summary, including Net Present Value by Year and Payback Period Calculations:

The Institution did not compute net present value by year or calculate the payback period.

4. What was the date of your cost benefit analysis? The Institution did not prepare a cost-benefit analysis.

I.F. Risk Inventory and Assessment

SIRIS is fully operational and is supported through voluntary agreement among multiple Smithsonian units. Inherent risks are associated primarily with failure to adequately support the continued operation and enhancement of SIRIS. Those risks can be codified as follows:

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
N/A	Organizational and Change Management				
N/A	Business				
N/A	Data/Info				
Nov 2001	Technology	SI will not have a robust IT infrastructure in place	Medium	SI has initiated complementary project to modernize its infrastructure incrementally through FY 2005, which will help ensure that staff and the public can access SIRIS.	SI has increased contractor support for help desk and network services and bandwidth to the Web, and upgraded network backbone switches.
March 2000	Strategic	Institution will not have a modern library and archives collections management system in place.	Low	SIRIS meets the strategic goal of the Secretary to modernize collections management systems.	The first phase of SIRIS was successfully implemented in December 1999.

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
July 2002	Security	The IT infrastructure will not have adequate intrusion detection and firewalls in place.	Medium	SI plans to implement an adequate intrusion detection system and redesigned firewall in FY 2004.	SI has reduced the number of services passing through the existing firewall.
N/A	Privacy	SIRIS does not contain Privacy Act data.			
Nov 2001	Project Resources	The SIRIS project will not be adequately funded.	Medium	1. Seek other sources of funds. 2. Defer replacement of commercial software.	SIRIS has deferred replacing <i>Horizon</i> as FY 2004 funds were not approved.

1. What is the date of your risk management plan? The Institution did not prepare a risk management plan for the SIRIS project.

I.G. Acquisition strategy

1. Will you use a single contract or several contracts to accomplish this project?

The Smithsonian is using multiple contracts to support the SIRIS project.

1.A. If multiple contracts are planned, explain how they are related to each other, and how each supports the project performance goals.

The Smithsonian completed a requirements analysis and market survey of commercial library management software products in May 1998 and used full and open competition to acquire *Horizon* and system integration services in March 1999. The Institution has been incrementally implementing SIRIS since December 1999. The Smithsonian has relied on existing federal contracts and General Services Administration (GSA) schedules to acquire equipment and other commercial software products to implement, operate, maintain, and enhance SIRIS. Based on demonstrations in FY 2002 of library management systems at another agency, the Smithsonian has evidence that better commercial software products are available. The Smithsonian plans to conduct another market survey in FY 2004 to benchmark *Horizon* with market standards. Based on the market survey results, the Institution plans to competitively replace the current commercial software product in FY 2005.

2. What type(s) of contract(s) will you use?

Fixed price.

2.A. For cost reimbursement contracts, define risk not sufficiently covered by the risk mitigation plan to require this type of contract. N/A

3. Will you use financial incentives to motivate contractor performance? No.

4. Will you use competition to select suppliers? The Institution has competitively acquired commercial software product and system integration services and plans to use existing government-wide contracts such as the National Aeronautics and Space Administration's *Scientific and Engineering Workstation II* government-wide contract and the GSA schedule for other needed hardware, software, and services.

5. Will you use commercially available or COTS products, or custom-designed products? The Smithsonian has purchased *Horizon* commercial library management software package.

6. What is the date of your acquisition plan? The Institution completed a market survey and requirements analysis in May 1998.

7. How will you ensure Section 508 compliance?

SIRIS is Section 508 compliant.

I.H. Project and Funding Plan

The information required by this section will be provided by your earned value management system.

The Smithsonian is not able to implement an earned value management system until FY 2005 after deployment of the Projects and Time and Labor modules of the Enterprise Resource Planning System.

I.H.1. Description of Performance Based Management System

To help assure that requirements are being met, the SIRIS Management Committee monitors progress and interim results of the SIRIS enhancement initiatives and takes action when needed. The Committee is responsible for defining and validating functional requirements, for making resources available to support SIRIS initiatives, and for reviewing the progress of SIRIS initiatives to ensure that functional requirements are being satisfied in a timely and cost-effective manner. SIRIS work groups perform independent acceptance testing of all SIRIS enhancements. To help manage and control the project, the SIRIS project manager prepares detailed project plans that contain specifics on such tasks as data migration, integration, training, testing, implementation and other related activities needed to help assure the transition to production system operation. The Institution uses *Microsoft Project Central* to monitor and manage project performance. The project management control system tracks schedule performance against project plan milestones. This visibility helps both the SIRIS Management Committee and the project manager identify problem areas and take corrective actions when actual results deviate significantly from plans. The SIRIS Project Manager ensures that the necessary information is provided in a timely manner and entered into the project management control system. These mechanisms provide visibility into the SIRIS project's functional and technical characteristics, as well as establish management control points for assessing project schedule and quality.

I.H.2. Original Baseline

Cost and Schedule Goals: Original Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Deploy <i>Horizon</i> SW Modules	04/1999	09/2002	913	104	Smithsonian
Replace <i>Horizon</i>	01/2003	12/2005	1,096	1,563	Smithsonian
Data Content Enhancement	04/1999	N/A		6,391	Smithsonian
Completion date: 12/2005*			Total cost estimate at completion: 8,058**		

*The estimated completion date is for replacing *Horizon* software product. Data content enhancement will continue until all archives and library collections data have been captured.

**Estimate for completion is for development only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

I.H.3. Proposed baseline/current baseline

OMB has not approved changes to the original baseline.

Cost and Schedule Goals: Proposed <u> X </u> or Current (OMB-Approved)_____ Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Deploy Horizon SW Modules	4/99	01/03	1,401	104	Smithsonian
Replace Horizon	1/04	12/06	1,096	1,584	Smithsonian
Data Content Enhancement	4/99	N/A		6,391	Smithsonian
Completion date: 12/2006*			Total cost estimate at completion: 8,079**		

*The estimated completion date is for replacing *Horizon* software product. Data content enhancement will continue until all archives and library collections data have been captured.

**Estimate for completion is for development only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

The proposed current baseline reflects adjustments to the timeline because of resource issues and the software vendor's late delivery of iPAC software. The market survey and acquisition of a replacement commercial library management software product has been deferred for one year because the Institution's Executive Committee disapproved the funding request for FY 2004. Deployment of the SIRIS patron authentication module has been delayed four months because of its dependence on the iPAC software, which has been delayed in release from the vendor.

I.H.4. Actual performance and variance from OMB approved baseline

Comparison of OMB-Approved Baseline and Actual Outcome Phase/Segment/Module of a Project									
Description of Milestone	OMB-Approved Baseline					Actual Outcome			
	Schedule			Planned Cost (\$ 000)	Funding Agency	Schedule		Percent Complete	Actual Cost
	Start Date	End Date	Duration (in days)			Start Date	End Date		
Deploy <i>Horizon</i> SW Modules	04/99	09/02	913	104	SI	04/99		95%	
Replace <i>Horizon</i>	01/03	12/05	1,096	144	SI	01/04		0%	
Data Content Enhancement*	04/99	N/A	N/A	5,498	SI	4/99	N/A	N/A	
Completion* date: 12/05							12/06		
Completion date: OMB-approved baseline: 12/2005*					Estimated completion date: 12/2006*				
Total cost: OMB-approved baseline: 8,058**					Estimate at completion: 8,079**				

*The estimated completion date is for replacing *Horizon* software product. Data content enhancement until all archives and library collections data has been captured.

**Estimate for completion is for development only and covers FY 2001–FY 2008. Operations and Maintenance costs appear as part of Summary of Spending for Project Stages.

Part II: ADDITIONAL BUSINESS CASE CRITERIA FOR INFORMATION TECHNOLOGY**II. A. Enterprise Architecture****II.A.1 Business**

A. Is this project identified in your agency's enterprise architecture? Yes

B. Explain how this project conforms to your departmental (entire agency) enterprise architecture.

SIRIS supports the major business line of the Institution—collections management. The Smithsonian Institution completed a baseline inventory of automated information systems and IT products in March 2001 as part of a companion IT project to establish an enterprise IT architecture and deploy a managed IT infrastructure. Based on an analysis of the IT baseline, the Smithsonian defined a conceptual target IT architecture in July 2001 and published a Technical Reference Model (TRM) in January 2002. The TRM defines a comprehensive set of information technology standards, services, protocols, and products that define the target technical environment for the acquisition, development, and support of Smithsonian application systems, enterprise architecture, and the supporting IT infrastructure. The Technical Reference Model is based on the most recent version of the National Institute of Standards and Technology's Application Portability Profile. The Institution has selected, where appropriate, information technology components that best support an open system environment for operating its application systems. The underlying hardware and software platforms that SIRIS operates on are consistent with the Smithsonian enterprise IT architecture.

C. Identify the Lines of Business and Sub-Functions within the Federal Enterprise Architecture Business Reference Model that will be supported by this initiative.

SIRIS supports the Internal Operations and Infrastructure and the Education lines of business and the sub-functions of Supply Chain Management (inventory control of library and archive collections).

D. Briefly describe how this initiative supports the identified Lines of Business and Sub-Functions of the Federal Business Architecture.

SIRIS supports the functions of library and archive collections tracking and Inventory, library and archive collections management, research, curriculum development for K-12 and above, and public outreach through the web.

E. Was this project approved through the EA Review committee at your agency?

No. The Chair of the SIRIS Management Committee approved the SIRIS project in April 1997. The Smithsonian Executive Budget Committee has approved funding for this project.

F. What are the major process simplification/reengineering/design projects that are required as part of this initiative? Through the SIRIS project the SIRIS member units have standardized and defined business processes for library and archive collections management.

G. What are the major organization restructuring, training, and change management projects that are required? There are no major organization restructuring or change management projects. Training is part of the SIRIS project.

H. What are the Agency lines of business involved in this project?

Collections Management and Public Outreach

I. What are the implications for the agency business architecture?

Through the SIRIS project, the Institution provides an online, pan-Institutional system that supports research, education, exhibitions, and public programs. SIRIS serves the operational needs of 22 libraries, 14 archives, and research offices in 20 Smithsonian units to manage and control their collections.

II.A.2 Data

A. What types of data will be used in this project? Library and archives collections management data. The Institution has implemented the U.S. Machine-Readable Cataloging (MARC) data standards managed by the Library of Congress.

B. Does the data needed for this project already exist at the Federal, State or Local level? If so, what are your plans to gain access to that data?

The data used in SIRIS internal Smithsonian data. It does not exist at the Federal, State or Local level.

C. Are their legal reasons why the data can't be transferred? If so, what are they and did you address them in the barriers and risk sections above. N/A

D. If this initiative processes spatial data, identify planned investments for spatial data and demonstrate how the agency ensures compliance with the Federal Geographic Data Committee standards required by OMB Circular A-16. N/A

II.A.3 Application and Technology

A. Discuss this initiative/project in relationship to the application and technology layers of the EA. Include a discussion of hardware, applications, infrastructure, etc.

SIRIS is a business application that supports the primary business line of the Institution – collections management. The hardware platform, database, and system components are contained in the Technical Reference Model.

B. Are all of the hardware, applications, and infrastructure requirements for this project included in the EA Technical Reference Model? Yes If not, please explain

II.B. Security and Privacy

II.B.1 How is security provided and funded for this project?

SIRIS maintains critical archive, library, research, and library purchasing information and requires a high degree of data integrity. The Smithsonian protects sensitive data from unauthorized access and/or disclosure and assures data integrity when stored in electronic form, as well as security from unauthorized alteration or modification. SIRIS is controlled with respect to access, authority to modify, and ability to operate. Smithsonian staff access the system through desktop workstations. SIRIS requires users to authenticate their identity through the entry of a user ID and password. The system allows access only to authorized users based on user profiles. The public is provided access to selected research data through the Internet. Sensitive data is protected from public access through a firewall. The Smithsonian will document security requirements in a *Security Plan*. The plan will capture security safeguards now in place and planned for SIRIS. The Chair of the SIRIS Management Committee, with the guidance and assistance of the Chief Information Officer (CIO), will ensure that adequate controls are in place to assure the security and integrity of SIRIS data.

A. What is the total dollar amount allocated to security for this project? Security costs are included in the system development and operations costs and not broken out separately.

II.B.2 Does the project meet the following security requirements of the Government Information Security Reform Act, OMB policy, and NIST guidance?

A. Does the project have an up-to-date security plan that meets the requirements of OMB policy and NIST guidance? What is the date of the plan?

The SIRIS security plan will be complete in July 2003.

B. Has the project undergone an approved certification and accreditation process? No

C. Have the management, operational, and technical security controls been tested for effectiveness? Yes

D. Have all system users been appropriately trained in the past year, including rules of behavior and consequences for violating the rules? No, the Institution published Smithsonian Directive 931 *Use of Computers and Networks* on August 5, 2002. The Directive prescribes rules of employee behavior and identifies potential consequences. The Institution will implement an on-line computer awareness tutorial in FY 2003 and require employees to take the tutorial annually.

E. How has incident-handling capability been incorporated into the system, including intrusion detection, monitoring and audit log reviews? The Smithsonian's Information System Security Officer manages the response to major computer security incidents. Incidents are reported to the FedCIRC Operation Center. The FY 2004 budget request includes funding to implement an adequate intrusion detection system.

F. Is this system operated by contractors either on-site or at a contractor facility? No. If yes, does any such contract include specific security requirements required by law and policy? How are contractor security procedures monitored, verified, and validated by the agency?

II.B.3 How does the agency ensure the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access?

SIRIS does not maintain Privacy Act data.

II.B.4 How does the agency ensure that the handling of personal information is consistent with relevant government-wide and agency policies?

Not applicable. SIRIS does not contain personal information.

II.C. Government Paperwork Elimination Act (GPEA)

SIRIS supports the electronic government goals of the Government Paperwork Reduction Act (GPEA). Through SIRIS, the Institution has replaced cumbersome manual paper processes with electronic processes and provides selected research information to the public through the Internet. The public and other internet users conduct nearly 50,000 searches monthly of SIRIS databases. Since SIRIS primarily supports internal archive and library management transactions and will not place a paperwork burden on the public, the GPEA provisions are not applicable.

PART I: CAPITAL ASSET PLAN AND BUSINESS CASE

Agency: Smithsonian Institution

Bureau: (OIA)

Account Title: Salaries and Expenses

Account Identification Code: 33-0100-0

Program Activity:

Name of Project: Facilities Management System

Unique Project Identifier: 452-00-01-03-01-1001-00

Project Initiation Date: 1/1997

Project Planned Completion Date: 9/2006

This Project is: Initial Concept____ Planning____ Full Acquisition __ Steady State____
Mixed Life Cycle_X_

Project/useful segment is funded: Incrementally____ Fully __X__

Was this project approved by OMB for previous Year Budget Cycle? Yes X NoDid the Executive/Investment Review Committee approve funding for this project this year? Yes X NoDid the CFO review the cost goal? Yes X NoDid the Procurement Executive review the acquisition strategy? Yes X NoIs this investment included in your agency's annual performance plan or Multiple agency annual performance plan? Yes X NoDoes the project support homeland security goals and objectives, i.e., 1) improve border and transportation security, 2) combat bio-terrorism, 3) enhance first responder programs; 4) improve information sharing to decrease response times for actions and improve the quality of decision making? Yes No XIs this project information technology (see Section 300.4(e) for a definition)? Yes X No*For information technology projects only:*a. Is this project a financial management system (see section 42.2 for a definition)? Yes X No

10% of the systems functionality is financial in nature.

If so, does this project address a FFMIA compliance area? Yes No X

If yes, which compliance area?

N/A

b. Does this project implement electronic transactions or record keeping that is covered by the Government Paperwork Elimination Act (GPEA)? Yes No Xc. Was a privacy impact assessment performed for this project? Yes No Xd. Was this project reviewed as part of the FY 2002 Government Information Security Reform Act review process? Yes No X

If yes, were any weaknesses found? Yes No

Have the weaknesses been incorporated into the agency's corrective action plans?

e. Has this project been identified as a national critical operation or asset by a Project Matrix review or other agency determination? Yes No X

e.1 If no, is this an agency mission critical or essential service, system operation, or asset (such as those documented in the agency's COOP Plan), other than those identified above as national critical infrastructures? Yes X No

SUMMARY OF SPENDING FOR PROJECT STAGES

(\$ in thousands)

Project Costs	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total
Deploy FMS Software Modules ¹	271	515	375	375	640	624	633	642	4075
Enhance CAD drawings ²	0	0	0	0	500	500	300	300	1600
Server Consolidation ³	0	0	0	0	0	0	0	0	0
Facilities Management Software Acquisition ⁴	0	0	0	0	500	0	0	0	500
Acquisition Budgetary Resources:	271	515	375	375	1,640	1,124	933	942	6,175
Outlays:	271	448	393	375	1,476	1,191	958	941	6,053
Application SW Maintenance ⁵	258	293	311	320	364	384	405	428	2,763
IT Operations	25	28	25	25	30	76	76	55	340
Maintenance: Budgetary Resources:	283	321	336	345	394	460	481	483	3,103
Outlays:	283	279	334	344	388	451	478	483	3,040
Total, All Stages: Budgetary Resources:	554	836	711	720	2,034	1,584	1,414	1,425	9,278
Outlays:	554	727	727	719	1,864	1,642	1,436	1,424	9,093

I.A. Project Description

FMS consists of eleven modules: property, assets and inventory, space, CAD integration, stacking, leasing, project budgeting, maintenance management, call center, move manager, and materials handling. The Facilities Management System (FMS) supports the core activities of the Office of Facilities Engineering and Operations (OFEO), the facilities management offices in each of the museums and the National Zoological Park, space planners, budget analysts, and administrative officers. The FMS helps

¹ Includes system integration, in-house salaries, and training to deploy additional modules and changes to business processes: Reliability Centered Maintenance (RCM), Reports Manager, Project Management, and Geographical Information System (GIS)

² Includes the labor costs to create CAD drawings for all major museums and additional SW licenses.

³ Funds to consolidate FMS servers operated by the Office of Facilities Engineering Operations and the National Zoological Park are included in the Managed IT Infrastructure project.

⁴ The cost to purchase new Facility Management software.

⁵ Includes hardware replacement and maintenance, systems and DBMS software maintenance and operations staff.

the Institution manage information about the Smithsonian's buildings and grounds, including equipment maintenance, construction, asset inventory, space utilization, facilities drawings, and complete labor and material costs (including overhead). Budget analysts and administrative officers throughout the Institution use facility reimbursement information for both planning and reconciliation of their financial reports.

During the FY 2002–FY 2008 period, the Institution plans to 1) incorporate reliability centered maintenance processes in FMS, 2) extend the use of the project management module to larger construction and renovation projects, 3) create CAD drawings of all major museums and the National Zoological Park, 4) add geographical views and query/reporting capability on facilities and related information, 5) add reporting tool capability, 6) migrate to the new web-based release version of *Facility Center*, 7) expand FMS access, 8) consolidate FMS servers and databases of the Office of Facilities Engineering and National Zoological Park, and 9) develop interfaces with the Enterprise Resource Planning (ERP) system and the Building Control and Automation System, 10) expand the use Fleet Management in the FMS, and 11) implement the use of handheld device technology with the FMS.

I.B. Justification

1. How does this investment support your agency's mission and strategic objectives?

The Smithsonian Institution is the world's largest museum complex. In addition to the museums that provide services to the public, the Smithsonian also has facilities that serve as workplaces for scientists, curators, researchers, and other employees and that serve as storage for artifacts and specimens that are not on display. The Institution's most visible facilities are the 16 museums and galleries and the National Zoological Park. The Institution also manages: an animal conservation research center in Virginia; aircraft and spacecraft display and restoration facilities at Suitland, MD; centers for biological research; conservation and education programs in Panama and on the Chesapeake Bay; a center for astrophysics in Cambridge, MA, the Whipple Observatory on Mt. Hopkins in Arizona; a new telescope under construction in Hawaii; and the Linkport site in Florida.

The Institution's facilities consist of more than 400 buildings, house more than 140 million artifacts and specimens and extensive research facilities, and contain more than 8 million square feet, more than 900,000 square feet of leased space, and 19,000 acres of land.

One of the greatest challenges the Institution faces is the need to revitalize, repair, and maintain existing facilities, as well as construct assets to support new missions. To help manage these activities, the Smithsonian has implemented a commercial facilities management software product—*Facility Center*. Implementation of *Facility Center* will require expenditure of \$8.2 million during the FY 2002 to FY 2008 period. This is a relatively small amount when compared with the annual maintenance need of \$46 million and planned investment of \$1.42 billion to revitalize facilities.

The Institution plans to make the following enhancements during the FY 2002–FY 2008 period:

- *Incorporate Reliability Centered Maintenance (RCM) in FMS:* The recent National Academy of Public Administration (NAPA) study concluded that the current Heating, Ventilation and Air Conditioning (HVAC) equipment maintenance program at the Smithsonian needs restructuring. NAPA recommended that the Smithsonian consider using the RCM approach to facilitate a more effective business process for managing maintenance on HVAC equipment. An OFEO team has been formed to incorporate the RCM approach into the Smithsonian's HVAC maintenance program and in FMS.
- *Implement Project Management:* While work orders are currently being tracked within FMS, larger construction and renovation projects are not. Thus overhead costs are not tracked and project status information is unavailable to customers and other people who need to know.

An analysis of the various methods used to track project information is being planned and will culminate with a recommendation for improved processes. When the analysis is complete, the new business processes will be incorporated in the FMS and *PeopleSoft*.

- *Integrate site plans and major museum floor plans with FMS:* Basic space information is critical for real estate asset management. Space surveys and usage analyses were linked with centralized facilities drawings for the Renwick Gallery and National Museum of Natural History in FY 2001. In FY 2002, the Hirshhorn Museum and Sculpture Garden completed its space survey and the drawings and data are linked in *Facility Center*. The entire site plan for the National Zoological Park has been entered in *Facility Center* and floor plans for the buildings are being added one at a time. This data is critical for developing long-range facility master plans, accurate tracking of space use, projecting future space needs, and for accurate reporting of real estate and property information. Unfortunately, the FY 2004 budget request for increased funding for the continued integration of drawings with data was not approved. This will result in schedule delays until the possible approval of funding in FY 2005, or an opportunity for the inclusion of the work with a major project / renovation initiative.
- *Integrate Geographical Information System (GIS) technology with Facility Center data:* Efforts are underway to spatially reference all facility drawings. The Smithsonian is currently negotiating an agreement with NASA to assist OFEO in the conversion of data to GIS-compatible format. NASA will also assist the Smithsonian in acquiring and deploying a software tool that will include data integration with *Facility Center* and “what-if” capability for facilities management planning and analysis. GIS facilitates three-dimensional modeling and “walk-through” capability that supports project planning and development for buildings and sites.
- *Provide a user-friendly, graphical reporting tool:* The large number of requests for reports indicates there is a need for users to be able to retrieve and manipulate data into a reporting format. A user-friendly, graphical reporting tool will be provided to users along with training. Providing the users with a reporting tool will enable the Information Technology staff to focus on implementation and programming efforts that require high level, technical integration skills.
- *Upgrade to Facility Center 7.2:* The upgrade will provide new functionality that includes web-based technology and added security features.
- *Implement Materials Handling upgrade module.* *Facility Center* offers an integrated COTS program that can tie to individual buildings for more accurate assessment of maintenance materials inventory and use, with capability for centralized management control and reporting. The new materials handling module will provide OFEO and NZP with workflow technology that will reduce the administrative paper flow and handoffs currently involved in performing purchasing and asset management.
- *Expand customer access to enter work requests and submit inquiries:* The *Facility Center Get.Facility* product release web enables the work request process, which will allow Smithsonian staff to submit a request for work and perform inquiries via the web. In implementing this module, business processes need to be revisited and business rules established.
- *Consolidate FMS servers and databases:* Currently, the Office of Facility Engineering Operations and the National Zoological Park operate and maintain separate facilities management systems. The Institution will consolidate servers and databases and migrate to a common database management system.
- *ERP Interface:* The FMS feeds requisitioning, purchasing, receiving, and reimbursement information to the Smithsonian Financial System via a batch and payroll data from hard copy timecards to the

Payroll system. It also maintains personnel and project information. As *PeopleSoft* financial, personnel, and project modules are deployed, the FMS modules will be integrated.

- *Fleet Management Implementation:* Major institutional resources are devoted to the maintenance and repair of vehicles. Fleet Management will provide the Institution with a full and accurate accounting of the resources utilized in maintaining its fleet and the condition of fleet vehicles.
- *Seimen's Building Control System interface with Facility Center:* Interfacing the two systems will reduce data entry and provide information on equipment status and alarms from within Facility Center.

FMS application servers operated by the Office of Facilities Engineering and Operations and the National Zoo will be consolidated in FY 2003 as part of the Managed IT Infrastructure project.

2. How does it support the strategic goals from the President's Management Agenda?

The FMS project supports the President's Management Agenda goals to adopt best commercial practices to reduce operating costs and make it simpler for employees to do their jobs and integration of budget and performance.

3. Are there any alternative sources in the public or private sectors that could perform this function?

No. Managing the Institution's facilities is a core mission of the Smithsonian.

4. If so, explain why your agency did not select one of these alternatives. N/A

5. Who are the customers for this project?

Customers for the FMS system include museum facilities managers, museum space planners, and facilities planners.

6. Who are the stakeholders of this project?

Key stakeholders for the FMS project include the Office of Facilities Engineering and Operations and Museum and Research Facility Directors.

7. If this is a multi-agency initiative, identify the agencies and organizations affected by this initiative.
N/A

8. How will this investment reduce costs or improve efficiencies?

FMS provides the means to help assure immaculately maintained and serviced facilities, as well as easily accessible and accurate building and project information essential to maintaining Smithsonian facilities. Improved data quality, reduction in redundant data record keeping, and improved quantity and access will assist the variety of Institutional audiences who benefit from facility information and who require different levels of detail and depth in it. The Institution has a variety of audiences who benefit from the facility information and who require different levels of detail and depth in that information. Major uses and constituents of the FMS data, are detailed in the following table:

Use of FMS Data	Major Constituent(s)	Benefits
Interface with ERP (<i>PeopleSoft</i>).	Office of Facilities Engineering & Operations Museum Facility Managers Museum Space Planners Office of the Comptroller Office of Human Resources	<ul style="list-style-type: none"> Accounting data is accurate and reporting on costs of building ownership is efficiently produced. Personnel and timekeeping modules interfaced with ERP provides more accurate records and management reporting.
Property Management (includes property, space, leasing, stacking, CAD integration)	Office of Facilities Engineering & Operations Museum Space Planners Museum Facility Managers Smithsonian staff	<ul style="list-style-type: none"> Enables the Smithsonian to manage its entire portfolio of owned and leased properties and buildings. Strategic space planning. Through the FMS, the Institution will be able to electronically store and maintain accurate floor plans and make them available to all who need the information. A central repository will help assure that changes are discovered and recorded and reduce the cost associated with continual redrawing. The more accurate the floor plans, the more accurate the data available for substantiation of needs for increased funding. Accurate floor plans linked to the data allows hatched drawings or reports to be available with the following information: square footage used by organization, program, function, and public/nonpublic. Space utilization tracking and day-to-day management. Optimize space configurations and occupancy rates. Analyze and compare historic figures to strategically plan for future growth or reduction.
Asset Management (includes asset and inventory management)	Office of Facilities Engineering & Operations Museum Facility Managers Museum Space Planners	<p>The Smithsonian can record and track information on its HVAC assets such as acquisition costs, equipment components, maintenance history, maintenance costs, and equipment location.</p> <p>Information on other assets including furniture, fixtures and equipment, signage, interior and exterior building systems, even trees and landscaping items can be tagged, bar-coded and individually tracked from acquisition to retirement of the asset.</p>

Use of FMS Data	Major Constituent(s)	Benefits
Operations & Maintenance (includes the call center, maintenance management, project budgeting, materials handling and move management)	Office of Facilities, Engineering & Operations Museum Facility Managers	<p>The FMS provides the Smithsonian with the ability to track, measure and manage its operations and maintenance functions. The Smithsonian can perform:</p> <ul style="list-style-type: none"> • Project budgeting & management • Automated inspection scheduling and recording • Resource scheduling and management • Reliability Centered Maintenance inspection scheduling and recording • Multi-input Call Center facilities for rapid breakdown maintenance response • Work order processing and wireless dispatch • Resource scheduling & management • Purchasing • Materials handling • Management and automation of moves, adds and changes. • All work is fully accountable from time of request until completion of work; data accurately reflects status of repairs for internal management and external reporting requirements. <p>Using the FMS, the Smithsonian can undertake continuous improvement measures and benchmark against the organization's own history as well as accepted industry standards, such as IFMA or BOMA. This technology increases effectiveness and productivity by allowing the Smithsonian to track and analyze performance, make crucial improvements, and strategically plan for the future.</p>
Reporting (includes customized management reports available by 10/2002)	Office of Facilities Engineering & Operations Museum Facility Managers Museum Space Planners	<p>Staff has a user-friendly reporting tool available to obtain information on an ad-hoc basis.</p> <p>Customized reports are available for use by senior management, daily users and customers to monitor and track performance.</p>

9. List all other assets that interface with this asset.

Enterprise Resource Planning System

Have these assets been reengineered as part of this project? Yes ____ No X.

I.C. Performance Goals and Measures (All Assets)

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY 2001)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
2003–2008	Management Excellence Public Impact	<p>1. Facilities data is in 2 systems</p> <p>2. SI-wide reporting on performance is not done.</p> <p>3. Integrated CAD drawings are not available and geo-referenced data is not available.</p>	<p>1. All facilities related data is centralized to ensure that facility data is recorded and reported consistently for all SI buildings by July 2003.</p> <p>2. Implement centralized reporting on performance metrics in FY 2003.</p> <p>3. Plans of Mall museums and zoo integrated with GIS/CAD technology available online to users by December 2005.</p>		<p>1. Users at multiple locations able to access consistent data. All OFEO sites enter data in a single system.</p> <p>2. Provide dashboard reports indicating where resources are being used and what types of activities are being performed.</p> <p>3. Provide SI with the capability to plot and locate properties and buildings based on geographic coordinates.</p>	

Fiscal Year	Strategic Goals Supported	Existing Baseline (FY 2001)	Planned Performance Improvement Results	Actual Performance Improvement Results	Planned Performance Metric	Actual Performance Metric Results
		4. HVAC and electrical equipment maintenance management information is only 20% accurate.	4. Increase accuracy of maintenance management information for HVAC and electrical equipment to 75%.		4. Reduced number of equipment outages and failures at the Institution.	

I.D. Program management

1. Is there a program manager devoted to the project? Yes. Michelle Gooch has been assigned as the Facilities Management System project manager.
2. Is there a contracting officer assigned to the project? Yes. Lynn Spurgeon has been assigned as the contracting officer.
3. Is there an Integrated Project Team? Yes.

3.A If so, list the skill set represented.

The project team followed a disciplined system development life cycle process prescribed by Smithsonian Directive 920 and tailored for implementing a commercial software product and included participants from the Office of Facilities, Engineering and Operations, museum space and facility management representatives, and staff from the Office of Chief Information Officer (OCIO).

4. Is there a sponsor/owner? Yes, the Office of Facilities Engineering and Operations.

I.E. Alternatives Analysis

1. Describe the alternative solutions you considered for accomplishing the agency strategic goals that this project was expected to address. Describe the results of the feasibility/performance/benefits analysis.

The Smithsonian has determined that implementing a commercial computer aided facilities management software product is preferable to developing a new in-house system or maintaining legacy in-house systems. The following alternatives were considered in this analysis:

Alternative	Description
Alternative 1	<i>Implement a commercial computer aided facilities management software product.</i> This was the preferred alternative and included purchasing a commercial software product, obtaining system integration contractual services and to provide training. By implementing a commercial software product, the Smithsonian minimized risk by acquiring a fully developed and functional system.
Alternative 2	<i>Maintain current systems:</i> Before moving to <i>Facility Center</i> , the Office of Facility Engineering Operations and the museums had multiple, custom-built and incompatible systems in operation to support facilities management or used manual process to track maintenance activities. None of these systems were based on any current operating system, and there was no integration among them. Those systems used outdated programming languages and operating systems, lacked documentation, were poorly coded and not scalable, and could not be modified or integrated to support the increased demand for services and data quality; updating this software would have amounted to a complete, ground-up rewrite. Because of the deficiencies of the existing systems, it was clear that no benefits would accrue from this alternative.

2. Summarize the results of your life-cycle cost analysis performed for each investment and the underlying assumptions.

The Institution did not perform a life cycle cost analysis for this project.

3. Which alternative was chosen and why? Define the Return on Investment (ROI).

The Institution selected Alternative 1—*Implement a commercial facilities management software product.* In implementing a commercial software product the Institution minimized its risk by acquiring a fully developed and functional system and complied with federal IT management guidance that encourages the acquisition of commercial software products over developing application software.

3. A. Are there any quantitative benefits that will be achieved through this investment (e.g., systems savings, cost avoidance, stakeholder benefits, etc)?

The Institution did not quantify benefits that will be achieved by automating facilities management.

3. B. For alternative selected, provide financial summary, including Net Present Value by Year and Payback Period Calculations:

The Institution did not compute net present value by year or calculate the payback period.

4. What was the date of your cost benefit analysis? The Institution did not prepare a cost-benefit analysis.

I.F. Risk Inventory and Assessment (All Assets)

The following major project-related risks can adversely affect project cost and schedule:

Date Identified	Area of Risk	Description	Probability of Occurrence	Strategy for Mitigation	Current Status as of Date of this Exhibit
	Organizational and Change Management				
Jul 2002	Business	The divestiture of the Facility Center product.	Medium	Tririga, the new software vendor states that it will continue to support the Facility Center product.	SI is monitoring the viability of the Facility Center product.
	Data/Info				
March 2001	Technology	SI will not have a robust IT infrastructure in place.		SI has initiated complementary project to modernize its infrastructure incrementally through FY 2005. The four-year migration plan will minimize risk of disruption.	SI has increased contractor support for help desk and network services, increased bandwidth to remote sites, and upgraded network backbone switches.
July 2002					
	Strategic				
	Security				
	Privacy				
October 1997	Project Resources	The FMS will not be adequately funded to implement enhancements.		Defer implementation of SW modules.	FMS project has deferred capture of drawings as FY 2004 funds were not approved.

1. What is the date of your risk management plan? The Smithsonian has not done a formal risk management plan.

I.G. Acquisition strategy

1. Will you use a single contract or several contracts to accomplish this project?

The Smithsonian will use multiple contracts to support the Facilities Management System.

- 1.A. If multiple contracts are planned, explain how they are related to each other, and how each supports the project performance goals.

The Smithsonian used full and open competition to acquire integration services and acquire a commercial computer aided facilities management software product. Based on a requirements analysis and market survey of commercial software products completed in September 1997, the Institution acquired *Facility Center*, which it has been incrementally implementing since July 1998. The Smithsonian has relied on existing federal contracts and General Services Administration (GSA) schedules to acquire equipment and other commercial software products to implement, operate, maintain, and enhance the FMS.

2. What type(s) of contract(s) will you use? Fixed price.

- 2.A. For cost reimbursement contracts, define risk not sufficiently covered by the risk mitigation plan to require this type of contract. N/A

3. Will you use financial incentives to motivate contractor performance? No.

4. Will you use competition to select suppliers? Yes. The Smithsonian has relied on existing federal contracts and GSA schedules.

5. Will you use commercially available or COTS products, or custom-designed products? The Smithsonian has purchased the Facility Center commercial software package.

6. What is the date of your acquisition plan? The Institution did not prepare a formal acquisition plan.

7. How will you ensure Section 508 compliance?

The *Facility Center* commercial software product was acquired prior to the effective date of Section 508 and although many of the features are in accordance with Section 508, the entire product is not in compliance. Smithsonian staff will work with the new vendor, *Tririga*, to ensure compliance of future releases.

I.H. Project and Funding Plan

The information required by this section will be provided by your earned value management system.

The Smithsonian is not able to implement an earned value management system until FY 2005 after deployment of the Projects and Time and Labor modules of the Enterprise Resource Planning System.

I.H.1. Description of performance-based management system (PBMS):

To help assure that business requirements are being met, the Facilities Management System Management Committee serves as a steering committee for the Institution's FMS project. Composed of senior facilities engineers and space and operations management officers from OFEO and the museums, the Committee defines and validates functional requirements, makes resources available to support the FMS project, reviews and approves budget requests, and reviews FMS project progress to ensure that functional requirements are being satisfied in a timely and cost-effective manner.

To help assure that facility management requirements are being met, the FMS Project Manager monitors progress and results of developments and takes action when needed. The FMS Project Manager is responsible for defining and testing new functional requirements and standards, and for keeping senior facility engineer and operation managers advised of issues as they develop. The project manager has continuing responsibility for ensuring that functional requirements are satisfied in a timely and cost-effective manner. To help manage and control the project, the FMS Project Manager prepares and monitors detailed project plans that contain specifics on such tasks as data migration and enhancement, integration, training, testing, implementation and other related activities. The Institution uses *Microsoft Project Central* for tracking schedule performance against project plan milestones. This helps the project manager to identify problems and take corrective actions when actual results deviate significantly from plans. The FMS Project Manager ensures that the necessary information from the project management control system is kept up to date and is provided to the chain of command in a timely manner. These mechanisms have provided a stable mechanism for assessing the day-to-day FMS operations, data quality, and new developments.

I.H.2. Original baseline

Cost and Schedule Goals: Original Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Deploy Reports Manager, Project Management, Fleet Maintenance, and Geographical Information System modules.	12/2000	12/2003	1,369	1,717	Smithsonian
Enhance CAD drawings (Create CAD drawings for all major museums and zoo)	10/2003	09/2006	1,095	1,300	Smithsonian
Completion date: 09/2006			Total cost estimate at completion: \$3,017		

* Estimate for completion is for development only and covers FY 2001–FY 2008. Operations and Maintenance and interface development costs appear as part of Summary of Spending for Project Stages.

I.H.3. Proposed baseline

OMB has not approved changes to the original baseline.

Cost and Schedule Goals: Proposed Baseline for a Phase/Segment/Module of Project					
Description of Milestone	Schedule			Planned Cost (\$ 000)	Funding Agency
	Start Date	End Date	Duration (in days)		
Deploy Reports Manager, Project Management, Fleet Maintenance, and Geographical Information System modules.	12/2000	12/2003	1,369	1,536	Smithsonian
Enhance CAD drawings (Create CAD drawings for all major museums and zoo)	10/2004	09/2008	1,460	1,600	Smithsonian
Acquire new Facilities Management Software and deploy SW Modules	02/2004	09/2008	1,703	3,039	Smithsonian
Completion date: 09/2008			Total cost estimate at completion: \$6,175*		

*Estimate for completion is for development only and covers FY 2001–FY 2008. Operations and Maintenance and interface development costs appear as part of Summary of Spending for Project Stages.

I.H.4. Actual performance and variance from OMB-approved baseline.

Comparison of OMB-Approved Baseline and Actual Outcome Phase/Segment/Module of a Project									
Description of Milestone	OMB-Approved Baseline					Actual Outcome			
	Schedule			Planned Cost (\$ 000)	Funding Agency	Schedule		Percent Complete	Actual Cost
	Start Date	End Date	Duration (in days)			Start Date	End Date		
Deploy FMS SW Modules	12/00	12/03	1,369	1,717	Smithsonian	12/00	N/A	51%	N/A
Create CAD drawings	10/03	09/06	1,095	1,300	Smithsonian	N/A	N/A	0%	N/A
Acquire new FMS SW & implement SW modules	N/A			N/A	Smithsonian	N/A	N/A	0%	N/A
Completion date: 09/2008									

The Institution has experienced schedule slippages as follows:

1) *Implement Project Management module*—OFEO postponed the pilot implementation of this module and has contracted with Plexus Corporation to perform a business analysis of the current project management methodology(s) with a goal of streamlining and standardizing the process. Upon completion of the analysis, the OFEO will work with the OCIO to implement a software tool that meets the requirements agreed upon as a result of the analysis.

2) *Upgrade to Facility Center 7.2, Deploy Reporting Tool, Upgrade Materials Handling module*—Peregrine Systems, *Facility Center* software owner, failed to release the scheduled software upgrades which provided new functionality, as well as a reporting tool, and a replacement Materials Handling module.

3) *Integrate GIS technology with Facility Center*—Peregrine Systems released a GIS product, but failed to provide support and services to fully implement the technology. The OFEO is establishing a GeoSpatial Conversion office to focus GIS efforts and is currently recruiting for a Director, GeoSpatial Information Systems. At the same time, ongoing negotiations on an interagency agreement with NASA-Langley Research Center, to assist the Smithsonian with implementing GIS, have been delayed.

4) *Integrate Mall Facilities Floor Plans with Facility Center*—The funding request to support further integration of Mall facilities floor plans was not approved by the Institution's senior executives for FY 2004 budget submission.

5) *Incorporate Reliability Centered Maintenance (RCM) business processes*—Plexus Corporation was hired to perform a business analysis of current facility operations processes and to create a RCM program. The integration of the new business process within *Facility Center* will occur once the analysis and program is in place.

I.H.4.a. Corrective actions:

Several schedule slippages occurred because OFEO management decided to perform further analysis before implementing the software. That decision was entirely appropriate because existing processes were outdated and inconsistent. Standardizing the business process will help ensure that the software implementation reflects improved processes from which management can retrieve information to assist in day-to-day operations, as well as strategic planning.

The software slippages were unavoidable as *Peregrine Systems* encountered business problems that impacted its ability to release scheduled software upgrades. *Peregrine Systems* filed for Chapter 11 bankruptcy proceedings in September 2002.

I.H.4.b Has the agency head concurred in the need to continue the program at the new baseline?
Yes.

PART II: ADDITIONAL BUSINESS CASE CRITERIA FOR INFORMATION TECHNOLOGY

II.A. Enterprise Architecture

II.A.1 Business

A. Explain how this project conforms to your departmental (entire agency) enterprise architecture.

The FMS supports a major business line of the Institution—facilities management. The Smithsonian completed a baseline inventory of automated information systems and IT products in March 2001 to establish an enterprise IT architecture and deploy a managed IT infrastructure. Based on an analysis of the IT baseline, the Smithsonian defined a conceptual target IT architecture in July 2001 and published a Technical Reference Model in January 2002. The model identifies a comprehensive set of information technology standards, services, protocols, and products that define the target technical environment for the acquisition, development, and support of Smithsonian automated information systems. The Technical Reference Model is based on the most recent version of the National Institute of Standards and Technology's Application Portability Profile. The Institution has selected, where appropriate, information technology components that best support an open system environment for operating its application systems. The underlying hardware and software platforms on which FMS operates are consistent with the Smithsonian enterprise IT architecture.

B. Identify the Lines of Business and Sub-Functions within the Federal Enterprise Architecture Business Reference Model that will be supported by this initiative.

The FMS will support the Internal Operations and Infrastructure line of business and the sub-function of Administration and Supply Chain Management.

C. Briefly describe how this initiative supports the identified Lines of Business and Sub-Functions of the Federal Business Architecture.

FMS helps the Institution manage information about its buildings and grounds, including equipment maintenance, construction, space utilization, facilities drawings and complete labor and material costs.

D. Was this project approved through the EA Review committee at your agency?

No. The Director, Facilities Engineering Operations approved the FMS project in September 1997. The Smithsonian Executive Budget Committee has approved funding for this project.

E. What are the major process simplification/reengineering/design projects that are required as part of this initiative? The Office of Facilities Engineering Operations is reengineering project management and Reliability Centered Maintenance processes.

F. What are the major organization restructuring, training, and change management projects that are required? There are no major organization restructuring or change management projects.

G. What are the Agency lines of business involved in this project?

Facilities Management

I. What are the implications for the agency business architecture?

Improved data quality, reduction in redundant data record keeping, and improved quantity and access will assist a variety of Institutional audiences who benefit from facility information and who require different levels of detail and depth in it.

II.A.2 Data

A. What types of data will be used in this project? Financial, time and labor, asset management, facility maintenance and operation data.

B. Does the data needed for this project already exist at the Federal, State or Local level? If so, what are your plans to gain access to that data?

The data used in the FMS system is internal Smithsonian financial, facility and asset management data. It does not exist at the Federal, State or Local level.

C. Are there legal reasons why the data can't be transferred? If so, what are they and did you address them in the barriers and risk sections above. N/A

D. If this initiative processes spatial data, identify planned investments for spatial data and demonstrate how the agency ensures compliance with the Federal Geographic Data Committee standards required by OMB Circular A-16.

OFEo will use the Federal Geographic Data Committee standards for the GIS portion of the Facilities Management System.

II.A.3 Application and Technology

A. Discuss this initiative/project in relationship to the application and technology layers of the EA. Include a discussion of hardware, applications, infrastructure, etc.

The FMS is a business application that supports the major business line of the Institution – facilities management. The hardware platform, database, and system components are contained in the Technical Reference Model.

B. Are all of the hardware, applications, and infrastructure requirements for this project included in the EA Technical Reference Model? Yes. If not, please explain

II.B. Security and Privacy

II.B.1 How is security provided and funded for this project?

The FMS maintains facility, financial, personnel and timekeeping information that require a high degree of data integrity. The Smithsonian protects sensitive data from unauthorized access and/or disclosure and assures data integrity when stored in electronic form, as well as security from unauthorized alteration or modification. The FMS is controlled with respect to access, authority to modify, and ability to operate it. Smithsonian staff access the system through desktop workstations. The FMS performs authentication of a user's identity with the network operating system and through the use of a valid entry of a user ID and password. The system allows access only to authorized users based on user profiles at both the application and database level. The Smithsonian will enhance the FMS documentation on security requirements in a Security Plan. The plan will capture security safeguards now in place and planned for the FMS. The Director, OFEO, with the guidance and assistance of the Chief Information Officer (CIO), will ensure that adequate controls are in place to assure the security and integrity of the FMS data

A. What is the total dollar amount allocated to security for this project? Security costs are included in the system development costs and not broken out separately.

II.B.2 Does the project meet the following security requirements of the Government Information Security Reform Act, OMB policy, and NIST guidance?

A. Does the project have an up-to-date security plan that meets the requirements of OMB policy and NIST guidance? What is the date of the plan?

The FMS security plan will be complete in July 2003.

B. Has the project undergone an approved certification and accreditation process? No

C. Have the management, operational, and technical security controls been tested for effectiveness? No.

D. Have all system users been appropriately trained in the past year, including rules of behavior and consequences for violating the rules? No. The Institution published Smithsonian Directive 931 *Use of Computers and Networks* on August 5, 2002. The Directive prescribes rules of employee behavior and identifies potential consequences. The Institution will implement an on-line computer awareness tutorial in FY 2003 and require employees to take the tutorial annually.

E. How has incident-handling capability been incorporated into the system, including intrusion detection, monitoring and audit log reviews? The Smithsonian's Information System Security Officer manages the response to major computer security incidents. Incidents are reported to the FedCIRC

Operation Center. The FY 2004 budget request includes funding to implement an adequate intrusion detection system.

F. Is this system operated by contractors either on-site or at a contractor facility? No. If yes, does any such contract include specific security requirements required by law and policy? How are contractor security procedures monitored, verified, and validated by the agency?

II.B.3 How does the agency ensure the effective use of security controls and authentication tools to protect privacy for those systems that promote or permit public access?

The FMS system is for internal transactions only. It will not promote or permit public access.

II.B.4 How does the agency ensure that the handling of personal information is consistent with relevant government-wide and agency policies? Security profiles have been established for individual user who can review only that data to which they've been given access.

II.C. Government Paperwork Elimination Act (IT projects only)

The FMS supports the electronic government goals of the Government Paperwork Reduction Act (GPEA). The Smithsonian has replaced cumbersome manual paper processes with re-engineered electronic processes. Since the FMS supports the Institution's internal facilities management internal functions and will not place a paperwork burden on the public, the GPEA provisions are not applicable.

Smithsonian Institution Motor Vehicle Fleet

There have been no significant changes in size/cost of the Smithsonian motor vehicle fleet. We do not anticipate any significant changes in this year or future years.

Vehicles are assigned to organizations based upon their mission and functional responsibilities. Approximately 70-75 percent of the vehicle fleet directly support maintenance related or pan-Institutional activities (i.e. Shuttle/Cargo, Audio Visual Services, Research, Construction, Safety). The remainder of the fleet supports various administration functions that require staff to travel to various Smithsonian locations primarily in the DC Metro area.

The Smithsonian Washington, DC vehicle fleet under the management of the Office of Facilities and Engineering Operations (OFEO) has approximately 185 units. As a result of the recent major realignment of facilities management organizations, the Office of Facilities Management will complete a thorough review of vehicle assignments within the next 90 days.

The recommended replacement cycle of motor vehicles by GSA is 5 years or 60,000 miles. The age of approximately 50 percent of the Smithsonian fleet is currently 16 years or older. It is our goal, as funds become available, to replace our fleet over a seven to eight year period, and to maintain a replacement program in line with the GSA-recommended standard.

SUMMARY REPORT/ALL ORGANIZATIONS

Size, Composition, and Annual Cost
(in thousands of dollars)

Agency: Smithsonian Institution Summary Report/All Organizations

Numbers of Vehicles by Type*

Fiscal Year	Sedans & Station Wagons	Lgt. Trucks SUV's/Vans 4 X 2	Lgt. Trucks SUV's/Vans 4 X 4	Md. Duty Trucks	Heavy Duty Trucks	Buses	Total Vehicles	Annual Operating Cost
<i>FY 2000</i>	29	273	90	32	16	7	447	1,225.0
Change**	1	(28)	4	0	3	0	(20)	-29
<i>FY 2001</i>	30	245	94	32	19	7	427	1,196.0
Change**	2	(5)	16	(4)	12	0	21	87
<i>FY 2002</i>	32	240	110	28	31	7	448	1,283.0
Change**	1	10	(1)	(5)	(10)	0	(5)	385
<i>FY 2003</i>	33	250	109	23	21	7	443	1,668.0
Change**	0	5	5	0	0	1	11	220.0
<i>FY 2004</i>	33	255	114	23	21	8	454	1,888

NOTES:

1) These numbers include vehicles that are owned or leased from GSA or commercial sources

See individual reports by organization for details.

(in millions of dollars)

Exhibit 52

Agency	Bureau	\	Description	PY	CY	BY
Smithsonian Institution			Report on Resources for Financial Management Activities			
			Accounting and Reporting			
		2001	No. of FTE	265	265	265
		2002	Obligations/Budgetary Resources	19.0	20.0	21.0
			Contractor Accounting and Reporting			
		2102	Obligations/Budgetary Resources	0.4	0.5	0.6
			Audits of Financial Statements			
		3001	No. of FTE	3	3	3
		3002	Obligations/Budgetary Resources	0.5	0.6	0.7
			Financial Management Systems			
		4001	No. of FTE	12	8	20
		4002	Obligations/Budgetary Resources	1.3	3.7	5.9
			Subtotal			
		5001	No. of FTE	280	276	288
		5002	Obligations/Budgetary Resources	21.2	24.8	28.2
			Adjustments			
		6001	No. of FTE	0	0	0
		6002	Obligations/Budgetary Resources	0.0	0.0	0.0
			Total, net			
		7001	No. of FTE	280	276	288
		7002	Obligations/Budgetary Resources	21.2	24.8	28.2
			Audits of Financial Statements			
			Component Contracts Audit Costs			
		8102	Obligations/Budgetary Resources	0.0	0.0	0.0
			Component In-house Costs			
		8201	No. of FTE	0	0	0
		8202	Obligations/Budgetary Resources	0.0	0.0	0.0
			Org-wide Financial Statements:			
			Contract Audit Costs			
		9102	Obligations/Budgetary Resources	0.3	0.4	0.5
			In-House Audit Costs			
		9201	No. of FTE	3	3	3
		9202	Obligations/Budgetary Resources	0.2	0.2	0.2
			Total, all reporting entities:			
		9401	No. of FTE	3.0	3.0	3.0
		9402	Obligations/Budgetary Resources	0.5	0.6	0.7
		9998	Agency Contact	Minnie Carmichael		
		9999	Telephone Number	(202) 275-0322		

Agency IT Investment Portfolio

(\$ in millions)

Code	Entry	Total Investment			Percentage		Hmlnd Scrt'y	DME			Steady State		
		PY	CY	BY	Financial	IT Security	Y/N	PY	CY	BY	PY	CY	BY
452-00-00-00-0000-00	Agency, Total IT Investment Portfolio (sum of all parts 1, 2, 3, 4)	48.2	62.0	70.0				15.8	24.7	24.8	32.4	37.3	45.2
452-00-01-00-0000-00	Part 1. IT Systems by Mission Area (subtotal for mission areas under part 1)	19.9	29.2	30.6				12.7	18.5	17.6	7.2	10.7	13.0
452-00-01-01-0100-00	Financial & Administrative Management	6.2	13.9	12.3				4.7	10.2	6.4	1.5	3.7	5.9
452-00-01-01-0101-00	Enterprise Resource Planning System	6.2	12.0	10.4	80		N	4.7	10.2	6.4	1.5	1.8	4.0
452-00-01-01-0102-00	Other F&A Systems	0	1.9	1.9	100		N	0	0	0	0	1.9	1.9
33-0100-0	Funding Source subtotal	6.2	13.9	12.3				4.7	10.2	6.4	1.5	3.7	5.9
452-00-01-02-0100-00	Collections	11.8	13.5	15.8				7.5	7.9	10.1	4.3	5.6	5.7
452-00-01-02-0101-00	Art Collections Information System (ArtCIS)	1.3	1.4	1.5	0		N	.7	.8	.8	.6	.6	.7
452-00-01-02-0102-00	CIS (NMAI)	2.3	2.7	4.7	0		N	2.1	2.5	4.3	.2	.2	.4
452-00-01-02-0103-00	Multi MIMSY (NMAH)	.8	.7	.8	0		N	.2	.2	.2	.6	.5	.6
452-00-01-02-0104-00	Research Information System (SIRIS)	1.8	1.8	1.9	5		N	.9	.9	1.0	.9	.9	.9
452-00-01-02-0105-00	The Museum System (NASM)	.8	1.6	1.1	0		N	.1	.1	.1	.7	1.5	1.0
452-00-01-02-0106-00	Collections Information System (OCIO)	1.0	1.5	1.5	0		N	0	0	0	1.0	1.5	1.5
452-00-01-02-0107-00	Research & Collections Information System (NMNH)	3.6	3.5	4.0	0		N	3.4	3.2	3.5	.2	.3	.5
452-00-01-02-0108-00	The Museum System (NPM)	.2	.3	.3	0		N	.1	.2	.2	.1	.1	.1
33-0100-0	Funding Source	11.8	13.5	15.8				7.5	7.9	10.1	4.3	5.6	5.7
452-00-01-03-000000-00	Facilities	.8	.7	.7				.5	.4	.4	.3	.3	.3
452-00-01-03-010101-00	Facilities Management System (FMS)	.8	.7	.7	10		N	.5	.4	.4	.3	.3	.3
33-0100-0	Funding Source subtotal	.8	.7	.7				.5	.4	.4	.3	.3	.3
452-00-01-04-000000-00	Scientific Computing	1.1	1.1	1.8				0	0	.7	1.1	1.1	1.1
452-00-01-04-100101-00	SAO	1.0	1.0	1.5			N	0	0	.4	1.0	1.0	1.1
452-00-01-04-100200-00	STRI	.1	.1	.3				0	0	.3	.1	.1	0
33-0100-0	Funding Source subtotal	1.1	1.1	1.8				0	0	.7	1.1	1.1	1.1
452-00-02-00-000000-00	Part 2. IT Infrastructure & Office Automation (subtotal for investments under part 2)	28.3	32.8	39.4				3.1	6.2	7.2	25.2	26.6	32.2
452-00-02-00-010101-00	Central Infrastructure & Office Automation	3.5	3.7	4.0			N	0	0	0	3.5	3.7	4.0
452-00-02-00-010202-00	Unit Infrastructure & Office Automation	11.1	11.6	12.6			N	0	0	0	11.1	11.6	12.6
452-00-02-00-010303-00	Telephone System Modernization	10.9	11.3	12.5			N	.3	1.2	3.5	10.6	10.1	9.0
452-00-02-00-010404-00	Managed IT Infrastructure	2.8	6.2	10.3			N	2.8	5.0	3.7	0	1.2	6.6
33-0100-0	Funding Source subtotal	26.9	30.1	36.5				3.1	6.2	7.2	23.8	23.9	29.3
No Enterprise Architecture & Planning or Grants Management													

Space Budget Justification

Agency Smithsonian Institution
 Bureau (OIA)
 GSA Bureau Code 0
 Date September 6, 2002

Smithsonian Institution (obligations in thousands of dollars)

	FY 2002		FY 2003		FY 2004		FY 2005	
	Sq. Ft.	\$	Sq. Ft.	\$	Sq. Ft.	\$	Sq. Ft.	\$
OMB approved inflation factor:		2.00%		2.10%		1.70%		1.70%

PART 1: RENTAL PAYMENTS TO GSA

GSA rent estimate	82,500	\$4,021	82,500	\$4,105	82,500	\$4,175	82,500	\$4,246
Agency adjustments to the bill:								
Chargebacks:	0	\$0	0	\$0	0	\$0	0	\$0
Other adjustments	0	\$0						
Statutorily imposed rent caps	0	\$0						
Planned changes to inventory:								
FY2002	0	\$0	0	\$0	0	\$0	0	\$0
FY2003			0	\$0	0	\$0	0	\$0
FY2004					0	\$0	0	\$0
FY2005							0	\$0
Requested program changes:								
FY2002			0	\$0	0	\$0	0	\$0
FY2003					0	\$0	0	\$0
FY2004							0	\$0
FY2005								
Total, net rental payments to GSA	82,500	\$4,021	82,500	\$4,105	82,500	\$4,175	82,500	\$4,246

FUNDING SOURCES FOR RENTAL PAYMENTS to GSA

Funded by direct appropriations:

Account title and ID code:

Acct. 1 Salaries and expenses 016-10-1166	\$0	\$0	\$0	\$0
Acct. 2 Miscellaneous Account 017-36-2222	\$0	\$0	\$0	\$0
Acct. 3	\$0	\$0	\$0	\$0
Acct. 4	\$0	\$0	\$0	\$0
Acct. 5	\$0	\$0	\$0	\$0
Acct. 6	\$0	\$0	\$0	\$0
Acct. 7	\$0	\$0	\$0	\$0
Acct. 8	\$0	\$0	\$0	\$0
Subtotal, direct appropriations	\$0	\$0	\$0	\$0

Funded by other sources:

Account title and ID Code:

Acct. 1 Resources control 016-12-2650	\$0	\$0	\$0	\$0
Acct. 2 User Fees 016-12-2750	\$0	\$0	\$0	\$0
Acct. 3	\$0	\$0	\$0	\$0
Acct. 4	\$0	\$0	\$0	\$0
Acct. 5	\$0	\$0	\$0	\$0
Acct. 6	\$0	\$0	\$0	\$0
Subtotal, other funding sources	\$0	\$0	\$0	\$0

Total funding sources (object class 23.1)	\$0	\$0	\$0	\$0
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Control difference	-\$4,021	-\$4,105	-\$4,175	-\$4,246
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PART 2: RENTAL PAYMENTS TO OTHERS

Non-Federal sources (object class 23.2)	720,076	\$15,410,022	735,774	\$17,618,570	707,625	\$17,122,663	707,625	\$17,413,748
Federal sources (object class 25.3)	0	\$0	0	\$0	0	\$0	0	\$0
Total rental payments to others	720,076	\$15,410,022	735,774	\$17,618,570	707,625	\$17,122,663	707,625	\$17,413,748

**SMITHSONIAN INSTITUTION
SELF-ASSESSMENT OF MANAGEMENT OF
PHYSICAL & FINANCIAL ASSETS
September 2002**

A. Self Assessment of Physical and Financial Assets

I. Physical Assets: Personal Property

Self Assessment of Policy & Program

The Office of Contracting is responsible for personal property management in the Smithsonian Institution. It sets forth the policy for physical asset management in Smithsonian Directive 315, *Property Management* (4/15/99). The policy document addresses all aspects of property management including:

- Authority and delegations
- Acquisition of property through purchase, transfer, and surplus
- Maintenance and use
- Identification
- Capitalization

Overall Assessment

This policy is generally current and accurate. It adequately sets forth a process to track assets and their use. It requires a utilization and maintenance review twice annually, and sets forth General Services Administration policy for identification and disposal of excess property.

Weaknesses

None currently, but SD 315 is under review and revisions are planned to make the directive more user friendly. The target date for completing the draft is December 2002, with the final document to be issued in March 2003.

II. Physical Assets: Inventory Management of Personal Property

The Smithsonian Institution uses the commercial off-the-shelf automated system Inte-Grate to track its personal property. Most accountable property is received at the Institution's central warehouse. The Inventory Management Specialist at the warehouse affixes bar codes and enters the property into the Inte-Grate Corporation system before the property is

delivered to the unit. When personal property is delivered directly to a Smithsonian unit, the unit accountable officer reports the delivery to the Office of Contracting and provides a copy of the purchase authorization and property information to the Inventory Management Specialist at the central warehouse. The Inventory Management Specialist then produces a bar code to be affixed to the property item and enters the information into the inventory. Each year, the Office of Contracting provides the accountable officers a copy of their units' current inventory. Unit accountable officers must review the listings, note any discrepancies, and sign and return them to the Office of Contracting.

Overall Assessment

The inventory management procedures provide a sufficient level of control over accountable personal property.

Weaknesses

None.

III. Physical Assets: Financial Aspects of Personal Property Management

Inte-Grate provides personal property inventory control, but it does not provide the property management information necessary for financial statements. Currently, the inventory is taken from the automated tracking system, and downloaded into a database. The database is then worked offline to determine depreciation, accretion and disposal, and transfers over the past fiscal year. These results are forwarded to the Office of the Comptroller, where the information is entered into the financial system and used to prepare the asset portions of the financial statements.

Overall Assessment

The financial aspects of personal property management are accurate, but the manual process is a significant weakness. The manual system does properly depreciate assets and results in proper classification of the assets. While the Smithsonian Institution did receive an unqualified opinion on its financial statements in this area, the auditors did cite this as a weakness.

Weaknesses

A weakness in the financial aspect of personal property management is that the inventory tracking and financial accounting systems are not integrated. Manual intervention is needed to produce necessary financial information

from the inventory. The Institution is implementing the first phase of its new Enterprise Resource Planning system that includes a property management module. The property management module is to be implemented in FY 2004.

IV. Physical Assets: Real Property

Self Assessment of Policy and Program

The Office of Facilities Engineering and Operations (OFEO), Real Estate Division, is responsible for real property asset management in the Smithsonian Institution. Policy for real estate asset management is contained in Smithsonian Directive 416, *Real Estate Asset Management* (issued for formal approval on 7/8/02). The policy document addresses all aspects of real estate management, consistent with both OMB and GSA guidelines. The policy addresses:

- Authority and delegations
- Establishing, reporting and maintaining real property records
- Acquisition, maintenance and disposal of real property
- Leased space management
- Space utilization assessments
- Public private partnerships

Overall Assessment

The policy reflects current real property asset management best practices. The accompanying guidelines, presently under development, will adequately set forth the methodologies and processes required to manage real property assets through their life cycle. Reconciled real property records and reports are required twice annually, and space utilization reports are required annually.

Weaknesses

The new policy and guidelines are still a work in progress. Task group input on implementation and interfaces is needed prior to finalizing the guidelines. Target date for completing the draft guidelines is November 2002, with the final document issued February 2003.

V. Physical Assets: Real Property Asset Management

Real estate management at the Smithsonian was decentralized until early FY 2002, and initial tasks required to improve management of real property assets include:

- Establishing accurate baseline records of core facilities data
- Developing accurate asset valuation information
- Recording baseline utilization data
- Establishing the total cost of ownership

OFEO's Facility Management System is Tririga's Facility Center (FC), which is used primarily for tracking time, labor, and work orders for facilities maintenance and repair. The Property Asset Management feature is no longer an integral part of the FC/facilities management system. The Institution does not currently have a license for this product. Real Property asset management features of PAM, which allows facilities information to be analyzed both graphically and in tabular form, have not been implemented; partial facilities data exist for only a handful of properties.

The Real Estate Division maintains a database of the Institutions' current real property inventory in a relational database. The space inventory is exported into Excel spreadsheets, and manually correlated with financial and cost data that are provided in various formats from several sources. The lease information resides in spreadsheet form, and is updated to reflect transactions, transfers, terms, and escalations over the past fiscal year. The lease information is compiled on OMB A-11, Form 54, reconciled with the Office of the Comptroller, and forwarded to the Office of Planning, Management and Budget for submission.

Overall Assessment

The Smithsonian currently uses a combination of spreadsheets and MS Access databases to track tabular spatial data, occupancy, ownership, and utilization for the Institution's real property. This process is time intensive, subject to reporting variance, and difficult to validate and maintain.

FC, absent a real property asset management component and a data set, does not currently provide the real property asset and management information necessary for real property asset tracking. Adequate real property asset management tracking requires a Computer Integrated Facilities Management (CIFM) or Infrastructure Management (IM) system to derive and associate core asset characteristics and costs, and full integration with FC/PeopleSoft to permit financial and facilities information to be tracked in concert. Ownership responsibility and maintenance requirements for both the CIFM system and the data require definition and staffing.

The current space inventory/cost accounting procedures provide an insufficient level of information and control for real property asset

management. Financial details of real property asset management are difficult to capture and correlate with actual facilities and organizations. The manual system requires retrieval of a variety of facility-related cost information. Once retrieved, the data must be rationalized and manually apportioned to the appropriate facility. Cost data collected in aggregate and related to several properties are manually pro-rated by area.

Weaknesses

The significant weakness of real property asset management, in addition to the lack of real estate asset management capabilities in FC, is that space inventory and utilization tracking, spatial information, and financial accounting systems are not integrated and fully automated. PeopleSoft/Asset Management supports tracking maintenance and repair and financials, but it does not offer the core textual or spatial capabilities required for real property asset management.

VI. Personal and Real Property: Financial Management Aspects

Personal Property

The Office of the Comptroller (OC) receives property listings from the Office of Contracting at the end of each fiscal year. Currently, the information needed to manage personal property is not entered into the Smithsonian Financial System. These reports consist of a fully depreciated property list, additions to the property list, deletions from the property list, and the depreciation list. OC uses these reports to create a manual spreadsheet to reflect current asset and accumulated depreciation balances. OC updates the General Ledger for equipment and depreciation at the end of the fiscal year.

Real Property

OC maintains manual Excel spreadsheets to manage the Institution's fixed assets. These spreadsheets are updated at the end of each fiscal year. OC ensures that all invoices for construction and repairs are paid or accrued for services performed before the end of the fiscal year. All invoices are posted to the General Ledger in the Construction in Progress account. The Office of Facilities Engineering and Operations and the National Zoological Park fill out worksheets that OC provides them that reflect the completion percentage of each project. OC reviews the worksheets for completed projects and reclassifies them from Construction in Progress to Buildings, and starts depreciating them using the straight-line method. The depreciation period for revitalization projects is 15 years, and for new construction is 30 years.

B. Planned Solutions to Identified Weaknesses

Overview

The Institution is implementing a new Enterprise Resource Planning system over the next three fiscal years, using PeopleSoft software. PeopleSoft Asset Management 8.4 provides functionality to support asset tracking, accounting, and reporting in the following areas:

- Adding and maintaining assets
- Asset budgeting
- Leased assets
- Adjusting and transferring assets
- Tracking repairs and service
- Group and composite assets
- Parent/child assets
- Physical inventory
- Joint venture processing
- Depreciation
- Asset retirement
- Mass changes
- Global (foreign) asset management
- Archival asset cost and depreciation information

As part of the PeopleSoft ERP suite of applications, Asset Management is fully integrated with the PeopleSoft Accounts Payable, Budgeting, Inventory, General Ledger, Projects, and Purchasing modules.

Solution for Personal Property

The significant weakness identified in the current management of Smithsonian personal property is the lack of integration between the asset tracking system, and the financial accounting system. PeopleSoft Asset Management 8.4 (PS/AM) addresses this deficiency in several ways. The PS/AM depreciation calculation is based on configurable conventions for begin date and rate schedules, as well as user defined calculation methods, to handle virtually any depreciation computation. Depreciation calculations are processed and entries posted to the General Ledger using standard production jobs, eliminating the need for an external depreciation program and manual entry of computations into the accounting system.

Secondly, PS/AM integration with Purchasing and Accounts Payable allows purchases to be recorded with asset profile information for book costs, depreciation calculation, and capitalization status directly on requisitions and

purchase orders. The purchases can be recorded into Asset Management after the receiving process through an automated procedure, as can actual costs from Accounts Payable after the voucher is posted, eliminating the need for manual entry of purchased personal property into the asset tracking system.

The basic asset recording requirement for tracking federal, trust, and grant and contract assets separately can be handled through the PS/AM asset management business unit. Reporting is done by AM business unit, and AM business units can be configured so that they all roll up to the same Smithsonian General Ledger business unit when posted to the financial system. PS/AM also allows the same assets to be maintained in multiple asset books, typically used to separate book and tax accounting information. This might be useful if SBV personal property assets are incorporated into PS/AM.

PS/AM offers approximately 75 delivered reports covering depreciation, retirement, leases, asset transfers, and additional, all by AM business unit. These delivered reports provide most of the annual information that the Office of Contracting tracks for federal, trust, and contract/grant property assets. Custom reports can also easily be written using PeopleSoft-provided tools.

Solution for Real Property

In order to support the Institution's dual needs for detailed fixed asset attribute information to support space utilization planning and facilities maintenance and repair, as well as financial information to support project costing and planning, capital budgeting, and financial reporting, the first recommendation is an integration of OFEO's Facilities Center system and the PS/AM system. This integration has already begun in the PeopleSoft Phase I implementation through the automated transfer of FC maintenance and repair purchase requests to PeopleSoft Purchasing. The second recommendation is purchase and implementation of a Real Estate/Real Property Management system to permit financial and facilities information to be tracked in concert. Integration in a later phase can focus on synchronization of fixed asset recordation in all systems.

PS/AM includes a composite asset category that would support the current Smithsonian practice of charging a number of repair and construction purchase orders to work in process, and then cutting an entire group of them into service as a fixed asset project, and beginning depreciation. Composite project fixed assets would need to be established as either repair and

renovation assets with a 15-year life, or new construction assets with a 30-year life.

PS/AM supports both capitalized and non-capitalized leases, and performs appropriate payment calculations. PS/AM supports recording and tracking asset maintenance and repair, with an ability to view the maintenance history on any asset, but this data would need to be tightly integrated with FC. PS/AM also offers the ability to allocate depreciation charges based on user-defined allocation bases. This might be useful, for example, to allocate depreciation on a building to individual organizations or programs. There is a limited ability in the basic asset setup to record physical attribute information such as square footage for a building, but most of those types of data would be kept in much more detail in the property management system.

Smithsonian Institution
Salaries and Expenses – Homeland Security

Program Name	FY 2002 BA	ERF BA	FY 2003 BA	FY 2004 Request
Salaries and Benefits	0	\$8,800	\$8,971	\$11,393
Other Objects	0	\$12,907	\$11,000	\$830
Totals	0	\$21,707	\$19,971	\$12,223

MAJOR PROGRAMS

Salaries and Benefits

In FY 2002, the Institution received emergency supplemental funding totaling \$21,707,000 in no-year funding for anti-terrorism security measures. Of this amount, \$7,719,000 and 210 FTE's were provided to the Office of Protection Services (OPS) and \$1,081,000 and 25 FTE's were provided to the National Zoological Park (NZIP) for security staff to conduct external patrols, operate magnetometers and x-ray machines, and provide security for the Institution's Victor Building.

For FY 2003, \$8,971,000 (\$8,800,000 plus \$171,000 Necessary Pay) in additional funding is anticipated for the salaries and benefits for the security staff hired by OPS and NZP with the FY 2002 emergency supplemental funding.

The Institution has requested \$11,393,000 for salaries and benefits for FY 2004. Of this amount, \$9,259,000 (\$8,800,000 plus \$459,000 Necessary Pay) is requested for salaries and benefits for OPS and NZP security staff hired with the FY 2002 emergency supplemental funding. An additional \$2,134,000 and 68 FTE's are requested to ensure that bag searches, increased gallery patrols, and vehicle inspections are conducted at the smaller Mall museums while ensuring full staffing for the operation of electronic visitor screening at the National Air and Space Museum (NASM) and the National Museum of American History (NMAH).

All risk assessments conducted by OPS staff, NZP staff, and independent firms have recommended heightened security measures for all of the Institution's museums and facilities. Some of these recommended heightened security measures have included increased security patrols at all facilities; bag checks, increased gallery patrols, and vehicle inspections at the smaller Mall museums; electronic visitor screening utilizing magnetometers and x-ray equipment at the three most visited museums; and a contingency plan for electronic visitor screening at NZP based on the threat level rating issued by the Office of Homeland Security. Each of these heightened security measures is critical to providing optimal security for the

Institution's facilities, visitors, staff, and volunteers. The Institution believes that its requested security staffing level is sufficient to ensure that critical heightened security measures are both enacted and maintained through FY 2004.

Other Objects

The FY 2002 emergency supplemental funding also provided funding in the amount of \$12,907,000 for the clean up and installation of various anti-terrorism security measures. Of this amount, the Institution provided \$9,463,000 to OPS, \$96,000 to the National Museum of the American Indian (NMAI), and \$3,348,000 to NZP. The components of the funds are as follows:

OPS	NMAI	NZP	Security Measure
\$1,000		\$300	Conduct security assessments/blast assessments
\$2,250		\$100	Placement of temporary physical barriers at Mall museums
\$3,560		\$500	Install public address systems/perimeter camera systems
\$2,159		\$1,925	Purchase/install magnetometers and x-ray equipment
\$55		\$23	Purchase HAZMAT equipment
\$439		0	Staff Support Costs
0		\$500	Additional fencing at Rock Creek location
0	\$96	0	NMAI Clean-up of George Gustav Heye Center in NYC
\$9,463	\$96	\$3,348	

Since receiving the FY 2002 emergency supplemental funding in February 2002, the Institution has completed risk assessments of all major facilities; completed blast assessments at NMNH, NMAH, NASM, and Hirshhorn Museum and Sculpture Garden (HMSG); purchased HAZMAT equipment; installed temporary barriers around NMNH, NMAH, and NASM perimeters; initiated the design of perimeter barrier systems, pop-up barriers, guard booths, perimeter closed circuit television (CCTV) and public address systems; and initiated a Disaster Management Plan/Assessment. The remaining FY 2002 emergency supplemental funding will be expensed in FY 2003 and FY 2004 for the installation of public address systems/perimeter CCTV and final purchase of magnetometers and x-ray equipment. This funding also enabled the Smithsonian to repair the air handling systems within the NMAI George Gustav Heye Center, which was contaminated with dust and debris from the collapse of the World Trade Center Towers.

In FY 2003, \$11,000,000 in one-time security funding is anticipated for security improvements at the Institution. Of this amount, \$10,825,000 is anticipated for OPS and \$175,000 is anticipated for NZP. The components of the funding are as follows:

OPS	NZP	Security Measure
\$1,400	0	Hardened Doors and Windows
\$230	\$175	Pop-up Barriers
\$1,100	0	Hardened Officer Booths
\$8,095	0	Permanent Physical Barriers
\$10,825	\$175	

The anticipated funds for FY 2003 will provide initial funding for the installation of permanent physical barriers along the Mall as determined by blast assessments, strengthened windows and doors at vulnerable buildings, and pop-up barriers and hardened officer booths at vehicle entrances.

In FY 2004, the Institution requests funding in the amount of \$830,000 to maintain critical security equipment at Mall museums. As warranties on magnetometer and x-ray equipment will expire in FY 2004, this funding will be used in part to maintain magnetometer and x-ray equipment purchased in FY 2002 and FY 2003 with the FY 2002 emergency supplemental funding. Additionally, the Institution will use this funding to maintain concrete planters, pop-up barriers, and permanent vehicle barriers installed in FY 2002 and FY 2003.

The Institution believes that the programs within the salary and expense account fully support the National Strategy for Homeland Security. These programs reduce the Institution's vulnerability to terrorism and minimize the damage and recovery from potential attacks.

**Smithsonian Institution
Facilities Capital – Homeland Security**

Program Name	FY 2002 BA	ERF BA	FY 2003 BA	FY 2004 Request
Natural History/Museum Support Center Design	0	0	\$2,000	0
Natural History/Museum Support Center Construction	0	0	0	\$22,000
Capital Modifications	0	0	0	\$10,100
Totals	0	0	\$2,000	\$32,100

MAJOR PROGRAMS

Natural History/Museum Support Center Design

In FY 2003, the Institution anticipates receiving \$2,000,000 in funding for the design of a National Museum of Natural History (NMNH) Pod 5 at the Museum Support Center to house the NMNH “wet collections.” Currently, the west wing of NMNH contains the largest collection of animal species in the world. This collection is stored in approximately 730,000 gallons of alcohol in hundreds of thousands of glass and metal storage containers. This collection is at risk as it is stored in space that does not meet numerous fire code standards. From a security standpoint, the alcohol and concomitant vapors are an enormous fuel load with respect to any potential terrorist-related incident. Design funds will enable the Institution to complete a reliable baseline schedule and scope for construction.

Natural History/Museum Support Center Construction

In FY 2004, the Institution has requested \$22,000,000 in funding for the construction of NMNH Pod 5. The Institution believes that the risk of continuing to store the NMNH “wet collections” within the west wing of NMNH is both a safety and security risk. The current storage areas do not meet fire code standards and the 730,000 gallons of alcohol used to store the collections create an enormous fuel load with respect to a potential terrorist-related incident. The Institution believes that the best solution for storage of this collection is the construction of a fifth pod at the Museum Support Center in Suitland, Maryland where security inside the perimeter fencing provides the lowest risk.

Capital Modifications

In FY 2004, the Institution is requesting funding of \$10,100,000 for long-term security improvements. The components of the funding are as follows:

OPS	Security Measure
\$7,400	Perimeter barrier construction at Mall facilities
\$300	Perimeter CCTV at NMAI Mall Museum, Udvar-Hazy Center and POB
\$700	Electronic access control at Mall facilities
\$1,700	Temporary structures for electronic screening at NMNH
\$10,100	

The long-term security improvements planned in FY 2004 were not funded in the FY 2002 emergency supplemental funding or the anticipated FY 2003 appropriations. This requested funding will ensure the installation of electronic access control (card readers) at all public/staff separation points thereby restricting the public's ability to gain access to sensitive and critical areas. This funding will provide for temporary screening structures at NMNH for the housing of electronic screening equipment, as NMNH cannot currently accommodate screening equipment at its entrances. This funding will also support the installation of perimeter camera systems to provide surveillance of building exteriors and full-time recording for investigative purposes. Lastly, OPS plans to use this funding to continue installation of permanent physical barriers, pop-up barriers, and guard booths.

The majority of these security improvements identified above were requested in the Smithsonian's comprehensive response to terrorism in the wake of the September 11, 2001 attacks. However, since that time, the Institution has performed several comprehensive risk assessments and identified additional Institution vulnerabilities that are contained in the latest FY 2004 request. The Institution feels that these security improvements funded within the programs of the facilities capital account fully support the National Strategy for Homeland Security. These programs reduce the Institution's vulnerability to terrorism and minimize the damage and recovery from potential attacks.

SMITHSONIAN INSTITUTION
PROJECTED OUTLAYS IN THE OUTYEARS
FY 2004 - FY 2008
(Dollars in Millions)

	FY 2004		FY 2005		FY 2006		FY 2007		FY 2008	
	<u>Budget Authority</u>	<u>Outlays</u>	<u>Budget Authority</u>	<u>Outlays</u>	<u>Budget Authority</u>	<u>Outlays</u>	<u>Budget Authority</u>	<u>Outlays</u>	<u>Budget Authority</u>	<u>Outlays</u>
Salaries & Expenses	508	504	521	519	529	528	523	523	527	526
Facilities Capital	139 (1)	102	253	149	271	209	262	256	297	274
Special Foreign Curr.	0	1	0	0	0	0	0	0	0	0
Total	647	607	774	668	800	737	785	779	824	800

(1) This level assumes FY 2003 funding of \$20 million for the NMAI Mall Museum. If the additional \$10 million added by the Senate is not provided in FY 2003, this amount will need to be added in FY 2004.

SMITHSONIAN INSTITUTION APPLICATION OF NONAPPROPRIATED TRUST FUNDS - Summary

	General Trust						Donor / Sponsor Designated						Government Grants and Contracts					
	FY 2002			FY 2003			FY 2004			FY 2002			FY 2003			FY 2004		
	FTE	Estimate	FTE	Estimate	FTE	Estimate	FTE	Estimate	FTE	FTE	Estimate	FTE	FTE	Estimate	FTE	FTE	Estimate	FTE
MUSEUMS AND RESEARCH INSTITUTES																		
American Museums																		
6900 Anacostia Museum & Ctr for Afr. Amer. History	3	808	3	476	3	452	0	68	0	215	0	400	0	104	0	100	0	0
4800 Archives of American Art	0	284	0	150	0	130	14	798	16	1,226	16	1,090	0	0	0	0	0	0
5100 Center for Folklife and Cultural Heritage	13	1,567	13	1,212	13	1,212	15	4,240	2	1,000	6	1,100	3	365	0	49	0	0
3800 National Air and Space Museum	37	3,736	47	15,077	47	20,077	47	6,204	55	1,770	55	1,835	1	181	2	191	2	53
5500 National Museum of the American History - Sum	16	3,354	9	1,483	7	1,939	69	28,041	79	10,134	81	19,106	48	6,207	42	3,204	40	2,800
--National Museum of the American History	15	3,018	8	1,231	6	1,707	69	27,095	79	9,759	81	18,456	8	3,327	3	600	1	200
--National Postal Museum	1	336	1	252	1	232	0	946	0	376	0	650	40	2,880	39	2,604	39	2,600
3000 National Museum of the Amer. Indian	6	3,892	6	1,754	6	3,476	4	1,284	4	682	4	722	0	31	0	0	0	0
5000 National Portrait Gallery - Summary	2	671	2	587	2	612	9	2,651	7	3,600	7	4,400	0	0	0	0	0	0
5200 National Portrait Gallery	2	664	2	582	2	607	9	2,651	7	3,600	7	4,400	0	0	0	0	0	0
--1/2 Office of Facilities Mgt. SAAM/NPG	0	8	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0
5300 Smithsonian American Art Museum - Summary	7	2,129	5	1,028	5	1,045	5	4,683	9	4,972	8	5,242	0	0	0	0	0	0
-- Smithsonian American Art Museum	7	2,122	5	1,023	5	1,040	5	4,683	9	4,972	8	5,242	0	0	0	0	0	0
--1/2 Office of Facilities Mgt. SAAM/NPG	0	8	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0
International Art Museums																		
5400 Arthur M Sackler Gallery/Freer Gallery of Art	0	442	0	300	0	300	54	7,638	56	7,526	56	7,526	0	0	0	0	0	0
5800 Cooper-Hewitt, National Design Museum	29	2,918	26	2,486	25	2,317	10	3,468	10	3,275	10	3,289	0	0	0	0	0	0
5600 Hirshhorn Museum & Sculpture Garden	1	1,255	1	529	1	839	0	3,721	0	2,253	0	2,455	0	0	0	0	0	0
5700 National Museum of African Art	1	456	1	319	1	320	0	446	0	385	0	450	0	0	0	0	0	0
Science Museums and Research Institutes																		
3300 National Museum of Natural History	16	3,759	14	2,099	14	2,099	35	11,926	30	12,754	28	13,215	7	2,338	7	1,038	7	1,040
3500 National Zoological Park	3	1,810	3	789	3	789	16	4,675	16	3,365	16	3,040	5	848	5	700	5	725
4000 Smithsonian Astrophysical Observatory	95	14,837	95	13,059	95	12,959	15	4,503	15	4,431	15	4,431	287	71,100	287	71,889	287	71,889
6400 Smithsonian Center for Materials Research	0	136	0	43	0	15	0	99	0	0	0	0	0	15	1	43	0	0
3900 Smithsonian Environment Research Center	6	964	6	546	6	546	10	915	8	610	8	235	34	2,700	35	3,000	36	4,000
3400 Smithsonian Tropical Research Institute	11	1,191	11	827	11	827	27	3,314	24	2,150	24	2,125	12	1,600	12	1,000	12	1,000
Subtotal, Museums and Research Institute	246	44,209	242	42,764	239	49,954	330	88,674	331	60,348	334	70,661	397	85,489	391	81,214	389	81,507

SMITHSONIAN INSTITUTION

APPLICATION OF NONAPPROPRIATED TRUST FUNDS - Summary

	General Trust						Donor / Sponsor Designated						Government Grants and Contracts					
	FY 2002			FY 2003			FY 2004			FY 2002			FY 2003			FY 2004		
	FTE	Estimate		FTE	Estimate		FTE	Estimate		FTE	Estimate		FTE	Estimate		FTE	Estimate	
PROGRAM SUPPORT AND OUTREACH																		
Outreach																		
6100 Smithsonian Inst. Travelling Exh.Svc.	12	1,771	12	660	660	12	660	1	1,234	1	561	0	210	0	9	0	0	0
3200 Smithsonian Center for Education & Museum Pr	7	800	6	577	0	577	0	459	0	290	0	325	0	1	0	30	0	20
9100 The Smithsonian Associates	0	270	0	182	0	182	0	559	0	539	0	797	0	0	0	0	0	0
7400 Smithsonian Affiliation Program	13	1,200	13	952	0	952	0	15	0	200	0	250	0	0	0	0	0	0
6200 National Science Resources Center	10	1,443	9	1,053	9	1,053	9	1,282	12	1,200	12	1,178	3	2,279	3	2,835	3	2,400
9200 Smithsonian Press	0	0	0	0	0	0	0	70	0	76	0	20	0	0	0	0	0	0
1900 Office of Fellowships	4	2,495	4	217	0	217	0	89	0	209	0	209	0	0	0	0	0	0
Subtotal Outreach	46	7,979	44	3,641	44	3,641	44	3,708	13	3,075	12	2,989	3	2,289	3	2,865	3	2,420
Communications																		
3100 VIARC	15	1,377	15	1,553	15	1,546	0	26	0	23	0	6	0	0	0	0	0	0
6500 Office of Public Affairs	6	1,193	6	1,355	6	1,355	0	89	0	66	0	66	0	0	0	0	0	0
9300 Smithsonian Productions	0	218	0	266	0	266	0	128	0	0	0	0	0	25	0	0	0	0
Subtotal Communications	21	2,788	21	3,174	21	3,167	0	243	0	89	0	72	0	25	0	0	0	0
Other Program Support																		
3700 Museum Support Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7200 Office of Exhibits Central	2	148	2	148	1	118	0	0	0	0	0	20	0	0	0	1	0	0
1700 Smithsonian Institution Archives	2	264	2	188	2	188	2	103	3	210	3	230	0	0	0	0	0	0
6300 Smithsonian Institution Libraries	12	1,362	12	986	12	962	0	445	0	905	0	841	0	3	0	0	0	0
Subtotal Other Program Support	16	1,774	16	1,322	15	1,268	2	548	3	1,115	3	1,091	0	3	0	1	0	0
Subtotal Administration	208	36,872	208	33,796	208	33,813	0	773	0	1,265	0	1,199	0	0	0	0	0	0
FACILITIES SERVICES																		
Office of Physical Plant																		
2500 Office of Protection Services	1	284	1	270	1	270	0	0	0	0	0	0	0	0	0	0	0	0
4700 Office of Physical Plant - Summary	4	4,938	4	4,870	4	4,855	4	525	4	390	4	1,531	0	1,500	0	2,500	0	679
Subtotal Facilities Services	5	5,222	5	5,140	5	5,125	4	525	4	390	4	1,531	0	1,500	0	2,500	0	679
Total Smithsonian	542	98,844	536	89,837	532	96,968	347	94,471	351	66,282	353	77,543	400	89,306	394	86,580	392	84,606

SMITHSONIAN INSTITUTION LIBRARIES



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